The Builder.

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Concerning Stained Glass.

SOME dozen years ago or thereabouts, in a notice of one of the volumes of Mr. Westlake's large work on the history of stained glass, we remarked on the difficulty of adequately illustrating stained glass by any kind of drawing on paper, and on the consequent difference in the general estimate of a design as seen in the actual window, compared with the impression it produces in a black and white drawing. To repeat the words then used—"it is the glowing and splendid effect of rich colour as seen by transmitted light, the magnificently decorative character of the work which enshrines it and of which it seems almost to form a part, which enchains the sense of the spectator, and leaves him little room for the same kind of critical estimate of the figure design which he might indulge in looking at the colder tones of an easel picture or a fresco." And we suggested this as the explanation of the curious kind of critical optimism whereby Mr. Westlake and other learned writers on stained glass will describe as "beautiful," as "of excellent design and workmanship," &c., ancient windows containing figures which in fact are grotesquely and absurdly bad in drawing, proportion, and expression. They look at the colour effect of the window, and the general distribution of the colour design, and overlook the bad drawing. This may be natural, but it is not criticism.

Mr. Day's book on stained glass* will not supersede Mr. Westlake's, nor is it intended to do so; the latter is a learned and exhaustive history; Mr. Day's is a more popular book, dealing quite as much with æsthetics as history. But it has the particular merit that the author sees his window, so to speak, from both sides, and can criticise weak design and drawing without being dazzled by effects of colour; and so far from regarding windows as especially intended for the display of figure subjects, he raises the question, which has before been raised in our own columns, whether figure subjects are even altogether suitable for treatment in stained glass. When we look up in admiration, he observes, at the figure of Moses in the great transept window at Chartres, it is as a colour effect that we see it rather than as an embodiment of the great law-giver. In ancient examples, however, there was a spirit of reverence in spite of simplicity of drawing and conception; by the designer the figure was intended not as mere decoration but as an illustration of the Bible for the benefit of an unlettered people; and in another passage Mr. Day ventures to say what we have also ventured to say, that what is often called conventional treatment of the figure in ancient glass was in reality the artist's attempt to come as near to realism as his skill allowed him. His windows were really intended to tell a story. But in modern times it is different:—

> "Artistic intention, admirable or not from the æsthetic point of view, is responsible for the introduction into our churches of delineations of all that Christians hold sacred, so ridiculous, it is a wonder devout worshippers allow them to be there. The excuse for glass is its decorative effect. Its value is in its colour. A saint in stained glass (to mention no higher Person) stands in a window for just so much colour: is not this rather a degradation to the saint?"

Our own opinion has long been that nineteen-twentieths (at a moderate estimate) of modern stained glass windows are *all wrong* in their aim and in their treatment, as far at all events as the figure subjects and backgrounds are concerned. Under the influence of mediæval precedent the modern glass artist aims at doing, for a decorative purpose, what the mediæval glass artist did for a religious and didactic purpose. He has adopted the figure subjects, the more or less perspective backgrounds, and the canopies, of the mediæval artist, in their essential character, though with better drawing of the figures. But all this is not what ought to be aimed at in modern times in the design and treatment of a stained glass window. We have an ideal entirely different from that, which we have occasionally seen realised in modern glass designed by special artists; and in some respects Mr. Day's ideal seems to be the same, though he is not always so uncompromising in his views as we should wish. A brief consideration of his opinions on several important points will afford an opportunity also of indicating our own.

Concerning what Milton speaks of as "storied windows richly dight" it should always be remembered that it is much more important that they should be "richly dight" than that they should be "storied." The object of stained glass is the decorative effect of colour seen by transmitted light; that effect which, as a colour effect, stands alone in glory and intensity, and which no colour seen by reflected light can equal. Hence, as Mr. Day, like other writers, is careful to point out, the pot-metal is the real and essential element in stained glass; in fact, Mr. Day confines the expression "stained glass" to the glass in which colour is incorporated, distinguishing that in which pigment of any kind is put on the surface of the glass as "painted glass." It is as well that we should accept this distinction of terms, and keep to it; the expression "stained glass" is often used very vaguely for things which are essentially different. And the beginning of the art was in the piecing together of pieces of colour into a translucent mosaic. As Mr. Day puts it—"The art of the glass painter was at first only the art of the glazier . . . As a painter places side by side dabs of paint, so the glazier put side by side little pieces of coloured glass." That is the true stained glass, and that method does not lend itself naturally to the formation of figure subjects. On this point Mr. Day is emphatic, returning to it over and over again.

> "The popular idea of an early window is that of a picture, or series of pictures, very imperfectly rendered. It may more justly be likened to a magnified plaque of Byzantine enamel with the light shining through it. The Byzantine craftsman, or his descendants, at all events, did produce, in addition to the ordinary opaque enamel, a translucent kind, in imitation presumably of precious stones; and it might very well be that it was from thence the glazier first derived the idea of coloured windows. Quite certainly that was nearer to his thoughts than any kind of painting, as we understand painting nowadays; and, what is more, had he aimed deliberately at the effect of enamel (as practised in his day), he could not have got much nearer to it."

In fact, in this form of glass, the leading plays just the same part as the cloisons in enamel. And it is obvious that this is not a method which would occur to any one, in the first instance, as a particularly suitable

* "Windows; a book on the Art of Stained and Painted Glass." By Lewis F. Day. London: B. T. Batsford. 1897.

Fig. 1.—Plain Glazing: Early French.

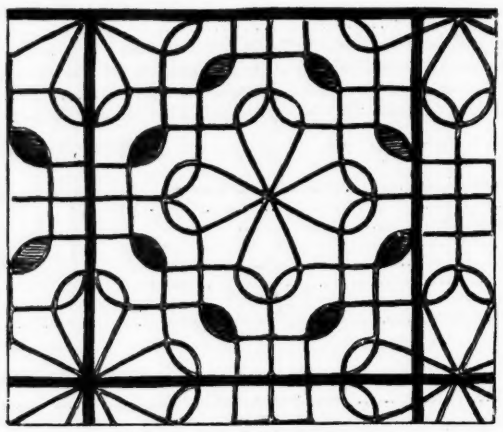


Fig. 2.—Plain Glazing: Lisieux.

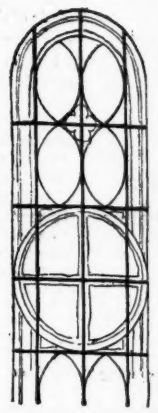


Fig. 4.—Poitiers.

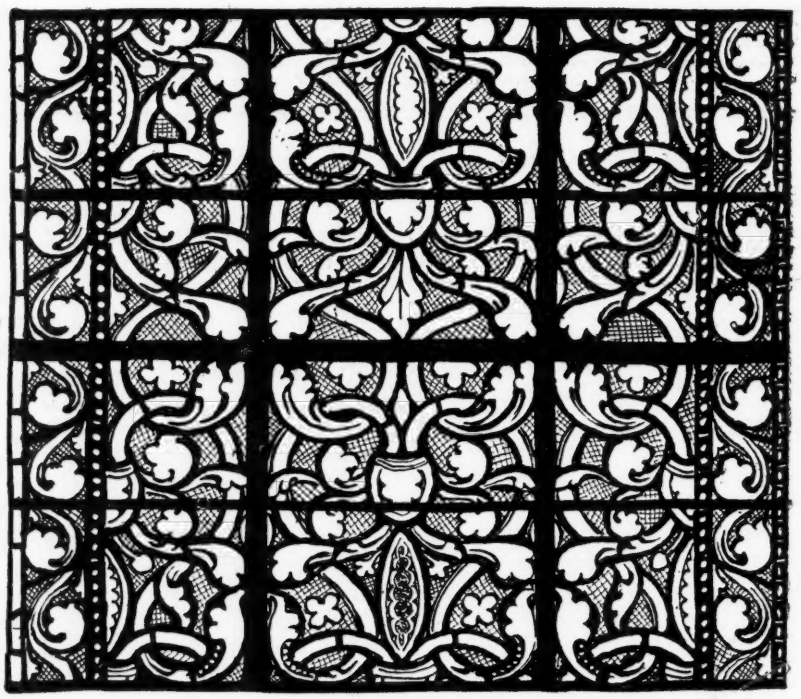


Fig. 3.—Grisaille Glass; St. Jean-aux-Bois.

one in which to execute figures; they must at all events be very stiff figures with very imperfect expression; indeed the countenance cannot be got at all without some kind of surface painting on that portion at least of the glass. So that the author is quite justified in the remark which he makes on a later page, that "it is not quite certain but that glass really lends itself only to a rather barbaric kind of design, or what we are barbarous enough to call barbaric. This is certain, the interest of figure work has put an end to ornamental glass." And even in the earlier windows the difficulty of shaping the hands and feet of figures led to a good deal of the surface of the glass being obscured by painting out the portions of the field between the limb and the surrounding leading.

The first idea of stained glass is ingeniously illustrated and explained, for the general reader, by Mr. Day's diagram of a part of the map of Europe, supposed to be represented by variously coloured pieces of glass put together. The means of support of the glass have then to be considered, in relation to effect. The leading may be regarded either as itself a part of the design, or the spaces between it may be considered as constituting the design. In white or light-coloured glass the leading makes the design. In strongly-coloured glass the leading practically disappears, the strong light of the glass overpowering it; we only see it as a boundary of demarcation between two colours; not as a positive line. The problem is something like that of the bars and the spaces in a traceried window. Only it may be observed that whereas in the early geometrical windows the spaces form the design, while in the late decorated windows the bars form the design, in glass the order is reversed; in the more geometric forms of leading the leads seem to be the design, in the later and highly elaborated figure windows the leads are ignored as far as may be; worked in so as to be as little noticeable as possible. Fig. 1 is a good example of early glazing (French) in which the leads form the design, carrying with them the strip of glass between them, the whole forming a kind of interlacing band. In this class of glass the leading plays so important a part that sham leads or surface leads were sometimes introduced, to define small details of pattern into which the glass itself could not easily be cut in the ante-diamond days; an example is given on page 24 of Mr. Day's book. In the example from Lisieux (fig. 2) there is a kind of mingling of the two effects, for the small coloured compartments direct the eye to the glass and form a simple design in themselves; still the leads are the main design. When we come to grisaille glass, where there is much surface design but little colour, it is difficult to make any rule as to the leads. Mr. Day gives two examples, from Salisbury and from Chartres (pp. 148 and 150), in which the main features of the glass pattern are followed by lead lines, but in which various compartments are also crossed irregularly, and to all appearance needlessly, by stray lead lines, looking as if they were put in for the purpose of using up small and irregularly-shaped bits of glass. This uncertainty as to the function of the leading in the design is unsatisfactory and puzzling to the eye; in the example of grisaille work from St. Jean-aux-Bois (fig. 3), which is a finer piece of decorative design than either of the other two, a great part of the satisfactory and monumental appearance of the design is due to the fact that the leads conscientiously follow the lines of the conventional foliage, and give it greater breadth and support.

Then there is the question of the placing of the iron bars for the ultimate support of the leads, which has a certain relation to the design of the window. The diagram of a window from Poitiers (fig. 4) is an interesting example of the simple arrangement of early work, with parallel vertical bars having little or no relation to the window design, and Mr. Day draws attention also to the nonchalant manner in which the central circle is allowed to cut into the border and fill the whole width of the window. Concerning this the author notes that it is characteristic of the early date of the glass (either before or early in the thirteenth century) that the bars, in this and one or two other analogous examples that are given, do not go out of their way to follow the outline of the circles, vesicas, quatrefoils and other shapes, but often cut right across them. In the fully developed thirteenth-century medallion window, in which the regular spacing of medallions had become an accepted custom, the bars followed the regular grouping of the medallions; of this a good many examples are given in the illustrations.

The subject of leading and bars, and their relation to the design, leads one naturally to think of the larger and more modern question of the mullioned window and the stained glass design. Mr. Day goes a good deal into this subject, and so far as we can make out his conclusions (for he seems a little uncertain and contradictory in his expressions) we do not agree with him. He fully admits that the object of the designer should be to accept the window plane; "to let you

Fig. 5.—Scratched Diaper.

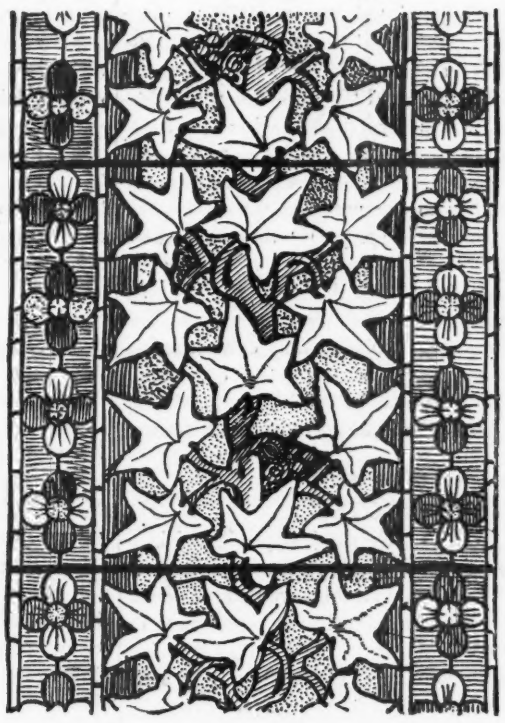


Fig. 6.—Munich Museum.

feel that it is a window you see, and not something through the window or standing in it." Then he says that "there is a great difference between designing a subject which extends through the whole width of the window, and designing it so that it appears to be seen through the window." That depends on how you understand the word "subject." The subject of a window may be, for instance, the *Te Deum*, and you may fill the separate lights with subjects all connected with that central idea, without carrying any group across the mullions. But Mr. Day seems to see no objection to the latter process. "If you were looking at a scene through a window, of course the mullions would interfere. Why, therefore, consider them if you wish to produce the effect of something seen through? . . . If the design is so planned that the important figures are grouped in separate lights, the landscape or other continuous background helps to hold the picture together, and is not hurt by the mullions." We differ from this *in toto*. Passing over for the present the question whether there ought in any case to be a landscape or other continuous background, the mullions are a portion of the architecture, to which the glass ought to be subordinate; and the glass is fixed in the jambs of the mullions, and therefore has no business to seem to pass behind them. The example given with approval by the author, of a reclining figure from a window in St. Mary's, Shrewsbury, which passes through three lights and behind the mullions, is to our thinking utterly absurd and wrong, whether in an ancient or a modern window. It is a contradiction of the structural facts.

The reader will find the process of transition from stained glass to painted glass, or glass in which painting was largely employed, very clearly told in Mr. Day's pages. In regard to the late glass he notes how the method of workmanship, though the work itself became more and more pictorial in effect, became less and less like painting; became in fact almost the reverse process—not putting on pigment but rubbing it off, the surface being covered first with a "matt" tint, and then lights taken out of it with a stiff brush, or even with a point, either for modelling a face, or for producing the "scratch diaper" such as is shown in fig. 5. This latter, although the process is commenced by covering the glass with an opaque tint, really produces an effect of brilliancy. Still, there can be little question that all the niceties of stippling on shadows and scraping out lights, which assisted the later glass artists in their elaborate figure subjects, were going further and further from the real original art of stained glass. The effort after naturalism in foliage ornament was not carried so far in any English work as in such a German example as is shown in fig. 6 from the Munich Museum. This is an extreme case, but taken in contrast with fig. 3 it serves to show very emphatically the weakness of naturalistic foliage as compared with such finely architecturalised design as that from St. Jean-aux-bois.

One of the legacies to us of the Mediæval artist is the architectural canopy, which formed in late work the means of filling up the spaces round and above the figures, and which seems at this present moment to be more in favour than ever; we rarely see a window without it. Mr. Day has been original enough to question the reasonableness of the canopy, and here we are entirely with him. It is, he observes in one place, "a making shift with sham architecture for the ornamental setting necessary to bring the figure into relation and into proportion with the window it is to occupy;" but this apparently solid structure, or attempted imitation of a solid structure, is quite out of place in glass design, and "it would have been easy," to quote Mr. Day again, "to have devised decorative forms at once more frankly ornamental, more interesting in themselves, and more beautiful, not to say less suggestive of a child's box of bricks"; and, as he says further on, "if anything in the nature of a canopy be desirable, clearly it should be constructed on the lines, not of masonry, but of glazing." The present admiration for the canopy is purely a piece of association; it is a precedent of what is supposed to be proper to stained glass (especially in a church). Mr. Day gives among his illustrations a German version of the canopy (fig. 7) which almost ceases to be a canopy and becomes arabesque, though, oddly enough, accompanied by the traditional capitals from which the canopy formerly sprung. This is not a very powerful piece of design, but at least it indicates more the right kind of thing for filling the head of a window, instead of a quasi-solid imitation of architecture. With the ordinary Renaissance canopy "it formed part of the canopy scheme that the structure should end before it reached the top of the window, so that you could see beyond it into space. The designers would have been only too happy if they could have done away with the glass above that." This of course, from our point of view, was only making bad worse, endeavouring to give a still more real and solid effect to a feature that had no business in glass at all.

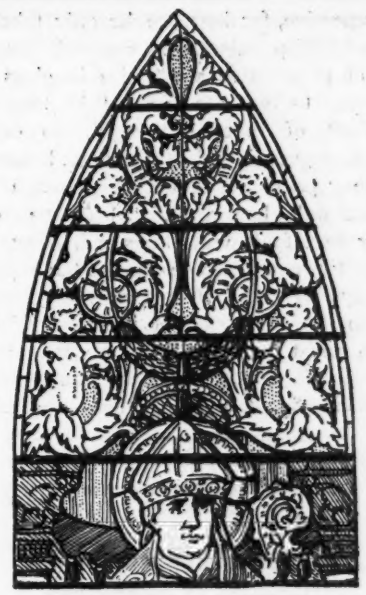


Fig. 7.—St. Peter, Cologne.

There is a chapter on landscape in glass, concerning which we should say that there ought to be no such thing, unless in a highly conventionalised or symbolical treatment. Mr. Day speaks, apparently with sympathy, of "delightful peeps of landscape sometimes seen through the columns and arches of an architectural background." From the way in which the sentence is introduced we do not quite gather whether he is speaking generally, or referring to a special school of windows. We can only say that the landscape seen through an architectural background is a double crime; two backgrounds instead of one. Stained-glass has no business with "backgrounds."

It seems to us that while Mr. Day has written in this book more sound criticism on stained-glass art than we have seen for many a day, he has just not gone quite far enough. He seems to have been unwilling to shake off all the traditional mistakes in stained-glass design, although he has ventured to question them all. In regard to the question

of perspective, for instance, he only takes a half-and-half position. To contend that all lines in perspective are amiss in glass is, he says, to go too far. "As long as no effect of relief is sought, no effect of distance attempted" (then what becomes of the "peeps of landscape through an architectural background?") "one can hardly find fault with lines indicating the perspective necessary perhaps to the expression of the design." If such lines are "necessary to the expression of the design," the design must be wrong. If we take such an example as the window from Gouda shown in fig. 8, a long gallery stretching

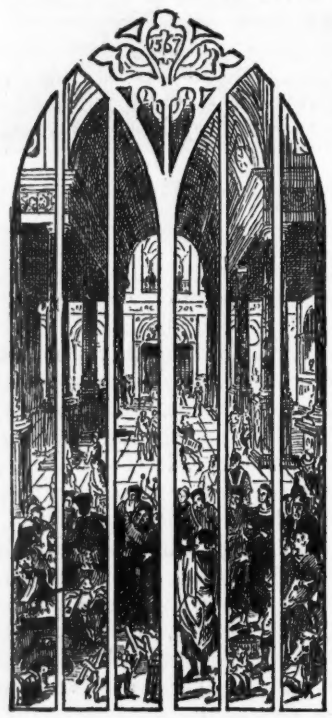


Fig. 8.—A Picture Window: Gouda.

away behind the mullions of the window, we can all see that such a treatment is absurd. But if so, the treatment of a niche in perspective is also absurd; it is only a question of degree, not of principle.

To sum up: The modern stained glass is, as we have already said, almost all wrong. Whether white glass with a design made in the leading, or grisaille glass with patches of colour, or a complete scheme of strong coloured glass leaded up, the window design ought to be a flat plane. The main object should be decorative; and if we have figures they must be treated as a flat design; and if we want a definite subject expressing an idea, it must be expressed not with any approach to realism, but in the way of symbolism. That this can be done has fortunately been shown in a few—a very few—modern stained-glass designs; some of those by Mr. Holiday and Mr. Whall, for instance, and that is what should be aimed at. Discard figure subjects arranged in a pictorial fashion; discard sham architecture; discard landscape and backgrounds; aim at decorative effect, combined (if something more than decoration is desired) with symbolical meaning. From this point of view some of the Renaissance glass, though painted and not really stained glass, is much more in the right direction than the late Mediæval glass, with its canopies and groups of figures and backgrounds. The Italian grisaille window shown in Mr. Day's illustration on page 298 of his book, for instance, though no doubt weak in style, is a real window design—perfectly flat and with no pretence to being anything but a flat plane with decorative design painted on it. With a pure pot metal window leaded up, something much finer in colour and much more architectural in style could be produced, no doubt; but that is the direction in which to work. Give up imitating the mediæval types, and study decorative and symbolic design in flat form; and then we may hope that, in Mr. Day's own words (p. 321) "there may still be a future for windows merely ornamental, which shall yet satisfy the sense of beauty."

Before quitting what in the main we regard as an admirable book, we may call attention to a printing mistake on page 85, where what is now line 11 has got into its wrong place. This should be corrected in a second edition.

NOTES.

The Duties of County Councils.

THE Report just published in a Blue Book on the organisation of the Local Government Board contains some interestiug suggestions in regard to the functions of County Councils. The County Councils' Association has suggested—as one way of lessening the pressure of work at the Local Government Board—that some of the functions exercised by the central body should be undertaken by County Councils. It appears, however, that there is so much hostility among Urban Councils and other bodies to an increase of the jurisdiction of the County Councils, that the Committee are unable to do more than recommend that some duties of which the Local Government Board can divest themselves without legislation should be handed over to County Councils. These are, we take it, more or less nominal. The interest, however, of the Report lies in this, that it emphasises the fact that County Councils are not only taking over all the work that they can do, but that they are willing to take over more. They have already become the most important of local bodies; their work attracts able and capable men, and there can be no doubt that their importance will go on increasing. Sooner or later they will become, in some form or other, the educational governing body of the county. The county, in fact, is attaining a position of great modern constitutional importance, and the more efficient its Council becomes, the easier it will be to transfer to it fresh functions, which will relieve not only the central departments in London but Parliament itself. Almost without our being aware of it, a great constitutional change is in progress.

Replenishment of London's Underground Water.

A SUGGESTION has been made by Mr. E. Bailey-Denton with reference to the London water-supply question, which, if not altogether feasible, at least merits consideration. After calling attention to the circumstance that the decline of the water level in the chalk and other formations has during the last twenty years, though gradual only, has been considerable, he describes a method by which the quantity of water abstracted could in some measure be replenished by introducing flood water into the pervious formations. The rainfall of the Thames Valley is about 27 in. per annum; he observes that of this, 18 in. disappear by evaporation, 4 in. serve to maintain the flow of the river, whilst 5 in. pass away as floods. It is this last with which he proposes to replenish the water-bearing strata. Without in any way accepting these figures, except in regard to the actual rainfall, we may pass on to consider the method suggested. The flood water is not to be stored by means of reservoirs or lakes, but the replenishment is to be effected whenever in rainy seasons the water in the main river or any of its branches rises to above a certain height (not specified) by the excess being diverted out of the river channel on to filter beds. The descent of the water from these filter beds to the desired stratum is to be effected by sinking shafts, into which the water is to pass after being freed from flocculent matters. Now, this little scheme might do very well if the chalk could be relied upon to take the water fast enough, and to distribute it over a great part of the lower Thames basin in the course of a short time; though the chief gainers by the adoption of the method would be the owners of large private wells. The water companies would not benefit much by the sending away from the Thames that which they so urgently require; and even were they empowered to sink wells to capture the superfluous water elsewhere than in the neighbourhood of their present intakes, it is easy to imagine the effect of exhaustive pumping such as would be required. One of the objects of the scheme is to obviate the necessity for the construction of reservoirs and lakes for storage purposes, but the usual rate of percolation of water through chalk is so slow, and the volumes of water that would be delivered by the river in flood in a short period so large, that immense storage would still have to be provided to give the water time to escape underground; at least that is our view of the matter. One of the most difficult parts of the problem would be the selection of a suitable site for the proposed shafts.

Abbey Mansions, Victoria-street.

APPARENTLY the coroner's inquest on the deaths of the men who were killed some months ago by the falling of a pier and part of the concrete roof has not ended the history of this disgracefully-erected building. The frontages to Victoria-street and Orchard-street have now been condemned as unsafe by the Surveyor of the London County Council, and the whole building is to be taken down; in the meantime it has been regarded as in so dangerous a state that the traffic past it has been diverted. It appears that workmen had been engaged in attempting to put on a new roof, and shoring up the walls, but it has now been found that the foundations were giving way. This fact forms a significant comment on the ruling of the Judge who persisted in believing, against the weight of the evidence, that the striking of the centres of the concrete was the sole cause of the disaster, and fully bears out the view which we took of the matter in our issue of May 28.

Close of the Acetylene Exhibition.

THE Acetylene Exhibition at the Imperial Institute was closed on the 15th inst. Throughout the period of three months during which the exhibition has been held, no mishap of any importance has occurred, and the authorities of the Imperial Institute and Society of Arts may be congratulated upon having thus demonstrated the fact that acetylene may with safety be employed for practical lighting

purposes. It is stated that the Committee's Report on the exhibition, including the results of lengthy tests made with each generator to ascertain the amount of acetylene yielded per pound of carbide consumed, is to be made public. Such a Report will be of great value, and will be eagerly perused by the generator makers; though it is likely to be the cause of much heart-burning and disappointment among many of the exhibitors, for when classification is attempted some must of necessity form the tail end of the list.

The Roman Fort at Saalburg.

THE remains of the Roman Fort at Saalburg on the Taunus range, near Homburg, are well known, not only to antiquarians, but to large numbers of visitors to Germany. They present a very perfect impression, or it might be more correct to say ground plan, since the remains are almost level with the ground, of a large Roman fortified stronghold. Some years ago* an article and plan on the subject were published in this journal, and it was shown how much labour and care had been given to the work of clearing away the earth from these ruins, so that there was now no difficulty in clearly understanding every detail of the place. For though little more, as we have said, was left than the foundations, there were never at any time buildings so elaborate as to require great imagination to see them in the mind's eye as they at one time existed. It is, however, with great regret that we find that the authorities are not content with the admirable work of clearing the ruins; they have now taken the altogether false step of reconstructing the Porta Decumana, or principal gateway; this will probably be followed by similar work. It might be well enough to construct in some convenient place a life-size, or nearly life-size, model, of the encampment; but to add modern work to ancient remains takes away the character from the place. A ruin is not meant to be rebuilt. It has a distinct character of its own, whether it be a church, a castle, or a fort. It is not intended to be transformed into a model. The next thing will be, we suppose, to place wooden figures of Roman soldiers in the gallery above the gateway. We repeat that to mix up ancient and modern work in this manner is wholly indefensible, and it is very astonishing to find such an incongruity in Germany, and especially in connexion with work which has been so admirably superintended by the late Colonel Von Cohansen and Herr Jacobi.

The New Cour des Comptes, Paris.

IN 1895 M. Moyaux, architect and Inspecteur-Général des Bâtiments Civils, obtained the first premium in the competition for the rebuilding of the Cour des Comptes on its old site on the Quai d'Orsay. As the new station of the Orléans railway has now obtained that site, the new Cour des Comptes will be built on a site at the angle of Rue Cambon and Rue Mont-Thabor, next to the Church of the Assumption. The principal façade will be towards Rue Cambon. The estimated cost is 4,500,000 francs.

German Post Office Buildings.

WE have from time to time referred to the increase in the size and importance of the post-offices throughout Germany. Another instance of this building growth may now be seen in the offices at Strasburg, which will be completed next year. They are in the new part of the town beyond the river Ill, and may be said to form a part of the group of public buildings which have grown up during the last few years—the Imperial Palace, the Hall of the Provincial Diet and the new University Library. The new Post Office can hardly be regarded as a success from an external point of view; there is a feeble attempt made to give a kind of Gothic characterisation to the windows, doorways, and other details of the building, which is not in harmony with the classical character of the other buildings which we have spoken of. Still, as we have often had occasion to say before, we wish that our own Government would follow, even if but distantly, in the steps of Germany in regard to the erection of post-offices.

* February 23, 895.

Touting in Edinburgh.

AN order of the licensing Court in Edinburgh has recently been issued requiring that licence holders should furnish plans of their premises to the Court. This appears to have caused quite a sensation among architects of a certain stamp in Edinburgh, in illustration of which a copy of the following communication has been forwarded to us, a lithographed letter bearing the name and address of an Edinburgh architect of whom we never heard before:—

"Edinburgh, September 5, 1898.

DEAR SIR,—In reference to the order issued at the last licensing Court that the licence-holders must furnish plans to the Court of their premises, I beg to offer to undertake the preparation of such plans on very moderate terms.—I am Sir yours faithfully ******

Office hours: 10 a.m. to 5 p.m."

This letter, we are informed, is being largely circulated in Edinburgh among the class of tradesmen who may be supposed to require the assistance offered. We decline to assist the author in his advertisement by giving his name and address, but we should advise those who receive such a communication to be cautious of employing any architect who takes this means of recommending himself.

Chelsea Vestry Report.

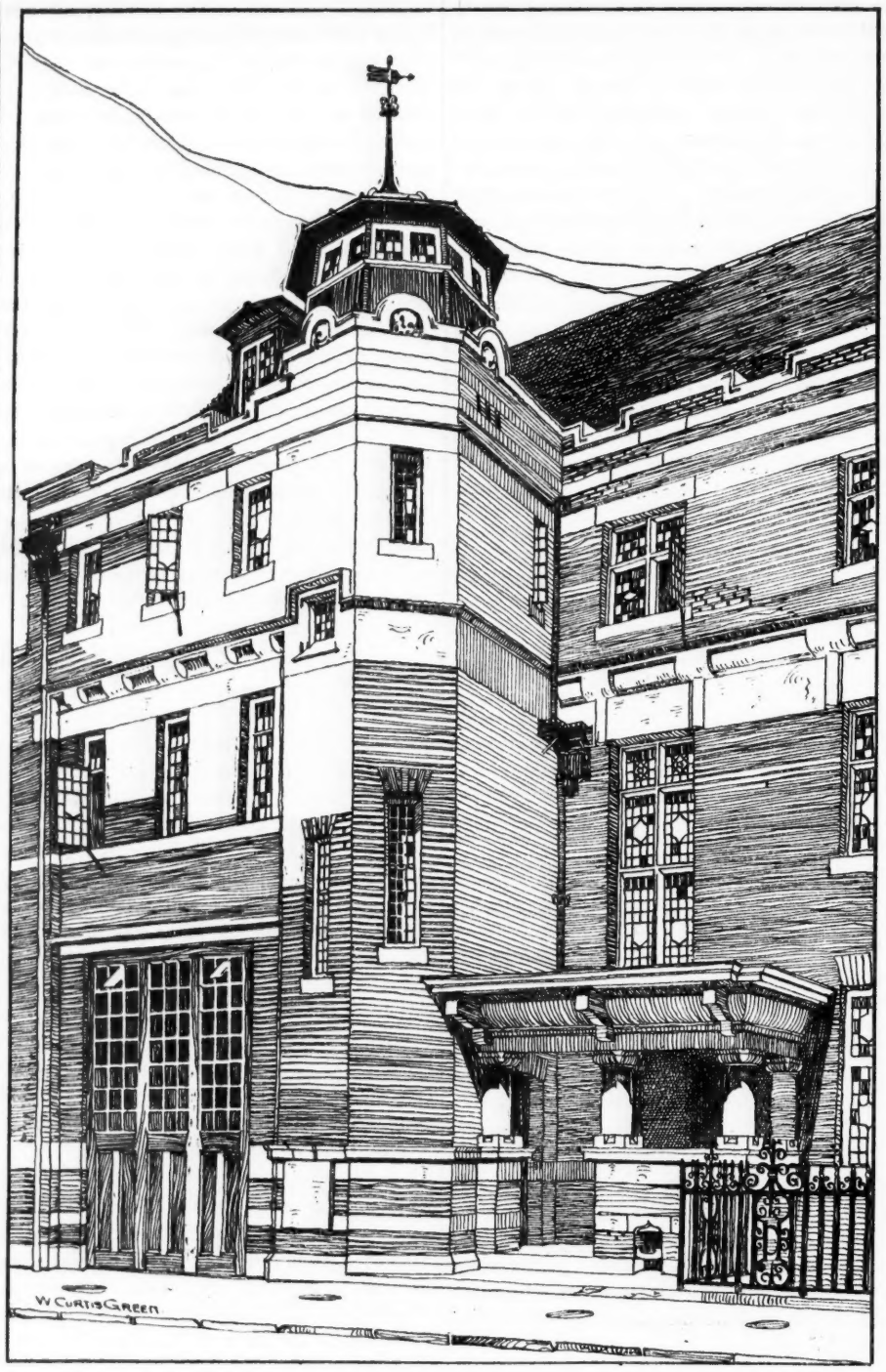
THE Forty-Second Annual Report of the Vestry of the Parish of Chelsea has been issued. Among the subjects reported on we find the trial by the Surveyor of some compressed asphalte paving blocks laid down in Kilburn-lane, which have been reported on favourably, and the paving is to be put to a more severe test by laying some of it along the south side of Sloane-square, where the traffic is very heavy. In November part of the river wall in Cheyne-walk was damaged by the unusually high tides, and the District Surveyor having reported that it must be rebuilt at this point (opposite Milman-street) an opportunity was afforded of widening the roadway by setting the wall further into the river, an alteration to which the sanction of the London County Council and the Thames Conservators was obtained. During the year the Chelsea Electricity Supply Company sought for powers to acquire compulsorily certain lands in the Parish of Chelsea (between Flood-street and Manor-street), including a depôt of the Vestry, which they had repeatedly declined to sell to the company. A deputation, representing a number of owners and inhabitants of property in the locality, attended before the Vestry, and urged them to strenuously oppose the Bill, pointing out that the vibration and noise from the company's existing works, and the emanations from the chimney shaft, were an intolerable nuisance to the occupiers of adjacent property, and that a great hardship would be inflicted on a number of poor people if they were dispossessed of their homes. The Vestry deposited a petition praying to be heard against the Bill, mainly on the ground that their duties as Surveyors of Highways and as the Sanitary Authority would be seriously interfered with if they were deprived of the use of their central depôt. It was, however, read a second time on March 22, but prior to this date a Joint Committee of both Houses of Parliament was appointed to consider the question of granting powers for compulsorily acquiring lands for generating stations; and probably their report, when issued, may alter the position of things.

Glasgow Architectural Craftsmen's Society.

THE opening meeting of this Society was announced for Friday night, this week, when Professor MacLay was to read a paper on "Hamburg, Berlin, and Dresden." We did not receive any notice of this from the Secretaries in time to announce it in our usual list last week. In the prospectus it is stated that "a patron of the Craftsmen's Society" has offered a prize for the best paper on "My Impressions of Glasgow Cathedral." The donor will conduct the members through the Cathedral on October 15. This is a rather unusual prize, and as there has been a good deal of controversy about Glasgow Cathedral lately, the result may be of some interest, if the competitors keep themselves clear from the temptation to merely follow or adopt the donor's views.

The Obliteration of the Architect.

A HANDBOOK to St. Saviour's Southwark, or Southwark Cathedral, which has been sent to us, compiled by the Rev. Canon Thompson, the Rector of the church, affords a charming example of that indifference to the claims of architects and artists which is so characteristic of the English mind, and is perhaps nowhere more notable than among clergymen. The book gives an illustration of the new nave, records how its foundation-stone was laid by the Prince of Wales, and how, after 50,000*l.* had been spent, it was opened, with the names of the royalties and principal ecclesiastical dignitaries who took part in the ceremony, but no mention whatever of the architect, whose name occurs nowhere in the book. Some new windows are acknowledged as the work of Mr. Kempe, and another one as the work of Mr. Holiday (whose name is mis-spelt "Holliday"); the name of the builder of the organ is also given; but the architect of the great new nave is not thought even worthy of mention. There is also a list of all the gifts which the church has received—nearly all of them works of art; but while the names of all the donors are given, those of the designers are ignored. The question with the average Englishman is not, who designed the thing? but—who paid the money? The list of donors is said to be given "pour encourager les autres." We presume the omission of the architect's name, and of all recognition of him, is also "pour encourager les autres."



Sketches of London Street Architecture. No. XXIX. House in Avonmore-road.

SKETCHES OF LONDON STREET ARCHITECTURE.—XXIX.

THIS is a house in Avonmore-road, designed as an artist's house and studio, and carried out in red brick with stone dressings, red tiles, and a lead-covered lantern. The staircase, as will be seen, forms a feature in the design of the front, and is well introduced; and there is considerable originality in the details.

MICHELANGELO.*

BY C. J. TAIT.

IN 1513 Julius died and Leo succeeded to the Papal See. This proved a period of worry to the sculptor in reference to the eternal tomb, and much of his time was again spent amid the loneliness of the Carrara Mountains. Julius, despite his temper, had been an honest friend to Michelangelo. He was a pontiff of principle, if his principles were bad. They were so far bad to have earned him the reputation of being Italy's curse. It was he who, while a cardinal, got Charles VIII. to move from Lyons, and commence his destructive journey south. He brought dignity to the papal throne, but he bought it at the expense of his country. Machiavelli has been a much bespattered person, yet his utterance shortly before his death was, "I love my country better than my soul." The truth is that Italy was no more to a pope than England, France, or Germany. Italy had to sacrifice herself for the political ideal of a universal church. Leo was one of the ordinary pleasure-loving Medici, whose estimate of his position was that it gave him increased facilities for masks and carnivals. "Let us enjoy the papacy," he said, "since God has given it to us." Cardinals in hunting costume were an everyday sight, while incompletely attired dancing girls moved the pilgrims to the Eternal City to wide-eyed astonishment. To serve such a master went much against the grain of Michelangelo, with his self-contained ascetic temperament, and he must have been relieved by his patron's sudden death. Adrian VI. succeeded Leo, a Fleming who spoke no Italian and was happily ignorant of the arts. Michelangelo might have enjoyed a prolonged holiday had it not been for the Cardinal Giulio de Medici, who afterwards became Clement VII. This prelate conceived the idea of erecting a mausoleum to the Medici family, in the shape of a new sacristy to the Church of San Lorenzo at Florence. San Lorenzo has ever been identified with the Medici. Both Cosimo and Lorenzo lie buried there. The façade had been left incomplete by Brunellesci, and it had been a plan, though a half-hearted one, of Leo's to get Michelangelo to complete this west front. The sculptor was bound under his contract for the Julius tomb to turn his hand to no other work until that was finished, an agreement, moreover, to which Leo was a party. Nevertheless, plans were made for the new façade, though they were never carried out. Indeed, most of the seven years of Leo's reign were probably occupied by the sculptor over what his historian, Condivi, has described as the "tragedy of the Julius tomb." Road-making up in the mountains, the construction of engines for handling and moving the marble blocks, and the shaping of them in the quarry, negotiations and contracts with hawlers and boatmen for their conveyance, the arrangement of strikes on the part of the men—those and many more matters squandered his time.

In 1520, however, he had delivered plans for the new sacristy. It was in the old sacristy, I may remind you, where Donatello's gates stood. The new sacristy as we now see it was never intended to be so left by the architect. It was to be filled with sculpture, while the architectural treatment was to be but a background. Had Michelangelo's architectural principles been a little more robust, his leading lines would have given the clue to his ultimate intentions. But his art is always a pot-pourri of this, that, and the other, and, though Classic in form, in sentiment it is absolutely the reverse.

Indeed, Charles Garnier, the French architect, considers that Michelangelo was not, properly speaking, an architect. "He made architecture, which is a different thing. And most often it was the architecture of a painter and a sculptor, which points to colour, breadth, imagination, but also to insufficient studies and incomplete education. He has not learned the language of the art. He has all the qualities of imagination, invention, will, which form the great composer; but he does not know the grammar, and can hardly write. In seeking the great he has too often found the tumid; seeking the original, he has fallen upon the strange, and also on bad taste." Though this is probably true enough, the bad taste referred to was the fault of the age, while too much education, as is the tendency of the French schools to-day, may become a fault rather than a virtue.

Michelangelo certainly made architecture more interesting, if less correct, than did his contemporaries, San Gallo and San Savino. Yet let me add that, in playing with accepted Classic detail, and seeking to be as original as you can, you are playing with edged tools. That he was less of an architect than a decorative artist is shown by his want of organic constructive lines. His walls are thick enough, and then he has done with architecture, and the rest is but detail and linings of marble glued to the work.

But the result is interesting, made so by the strange individuality of the man. There is about the spacious circular building a grave air of refinement that harmonises with its purpose. If some of the features are a little dull and apparently meaningless, we must remember that they are unfinished. The principal sculptures approaching completion are the two tombs of Lorenzo and Giuliano de Medici. These, as you know, do not represent the two great men of those names, but son and grandson. What was still lacking to the chapel may be gathered from a letter written to Michelangelo as late as 1562, wherein he is asked what designs he made for the four tabernacles on each side of the tombs; also what he projected for the eight statues above the doors and in the tabernacles of the corners; and, finally, what were his ideas for the paintings that were to adorn the flat walls and semi-circular spaces of the chapel. But nothing came of this attempted revival, and the whole remains as it was left. In these two monuments we feel that the sculptor has put much of the pent-up feeling that his inscrutable nature was wont to harbour.

He was sincerely attached to the Medici. They were not, like Julius, patrons; they were friends. In their death he beheld the tragedy of Italy. It is somewhat of this feeling that we see shadowed forth in these remarkable groups. In the one, Lorenzo "brooding, injured and indignant, over his own doom and the extinction of the race." Figures that we are wont to call "Dawn" and "Twilight" are stretched recumbent beneath him. The one starting from unrestful slumber—or does she but rouse herself from lethergy, to make a final effort to free herself, like the slaves

* The second of two Lectures upon "Michelangelo and His Masters given at the Exeter Technical and University Extension College, June, 1897.

upon the Julian tomb, from bonds not less clinging if invisible? "Twilight" lies, a herculean figure, like the Dionysos of Phidias, but sicklied over with the pale cast of thought.

In the other tomb Giuliano is not so much at one with his accessories as in the Lorenzo. He is more a citizen of this world, and unaffected by the mystery embodied in the fateful figures beneath him. It is as "Night" and "Morning" that these are known to us. "Night" is finished, even to its polished surface, as though in pourtraying the dark watches experience had lent its aid to the sculptor; while the other is incomplete, fraught as it might be with the suggestion that none could say what the day might bring forth. The mystery embodied by these figures is touched on by some lines written by an unknown hand, and supposed to be answered by the statue:—

"The Night thou seest here, posed gracefully
In act of slumber, was by an angel wrought
Out of this stone; sleeping, with life she's fraught:
Wake her, incredulous wight—she'll speak to thee."

"Dear is my sleep," so runs the statue's reply:—

"Dear is my sleep, but more to be mere stone
So long as ruin and dishonour reign:
To hear nought, to feel nought, is my great gain;
Then wake me not, speak in an undertone."

A group of the Madonna and Child stands in the sacristy, with also figures of two saints; an intended *ensemble*, perhaps, with a fresco background. What the general scheme was, we do not know; and the architecture suggests no place for them. The Madonna is, I think, most charming and successful—so very essentially his—showing that inconsequent mingling of the painter and the sculptor that is characteristic of him. In this way it resembles the Lorenzo. The effect depends more upon masses and light and shade than upon gradations of form. In the softer outlines of the Mother and bambino, he is always happy, and devoid of those tendencies to realistic effect displayed in his Pietás, where the emaciated limbs of the dead Christ offered him opportunities of anatomical minutiæ that are at once painful and unsuited to sculpture. Indeed, Michelangelo is constantly offending by his inartistic display of anatomical knowledge. Greek sensibility towards the human form, its recognition of a mobile muscular formation lying beneath the surface, over which the nervous surface again moves, while the whole is supported upon a powerful yet articulated framework of bone, is a revelation that Italian art but little grasped. It is rather an endeavour, by means of anatomical knowledge gained by dissection, to thrust everything to the surface—bone, muscle, and tissue—and by doing so strengthen, as it thinks, the resemblance sought for. But it is the emphasis only of exaggeration. The Italians did not know perhaps the Greek adage that the "half is greater than the whole"—a suggestion, that is, may convey more to your mind than a laboured minuteness of description.

The work at San Lorenzo was interrupted by an uprising in Florence and the expulsion of the very mean and inferior Medici Prince Alessandro. Alessandro appealed to Rome. Michelangelo meanwhile was appointed chief engineer of the military works at Florence in view of possible eventualities. He had reason to suspect the honesty of the Florentine General, and expressed his suspicions to the Signori. His complaints, however, not being well received, he betook himself to Venice, where he met with a public welcome that was gratifying to his wounded pride. But delegates followed him from Florence, and he was induced to return to his post. He felt at heart that the fate of his beloved city was worth more to him than personal considerations. On his return he set to work to raise a chain of fortifications around S. Miniato, a vulnerable spot from which the enemy's guns could command the city. He ingeniously protected the old church with mattresses against the enemy's fire, and all might have gone well had not his suspicions been fulfilled, and Malatesta, the General, turned his guns upon his own garrison, thus making an opening for the opposing force.

Michelanglo, fearful of his reception by the Pope after the part he had played, lay hid a long while in the campanile of San Nicolo, just beneath the hill. Clement, however, could ill spare his services, and a pardon was promised should he care to disclose himself. So he returned to his work at the sacristy. The sculptor remained in Florence engaged on this work until 1534, when Clement died, and the new Pope Paul summoned him to Rome to continue his labours in the Sistine Chapel, and for the next seven years this chiefly occupied him. It was about this time that he made the Pietá, now in the Duomo at Florence. I think there is a greater simplicity of feeling, though not of execution, about this group than perhaps in any other of his works. Condivi, his historian, considers it his rarest and most difficult of masterpieces, particularly because the figures are kept apart distinctly, nor does the drapery of the one intermingle with the other. Nicodemus, who stands behind, has been said to represent the sculptor himself. His mind, we know, was much turned towards religious sentiment at this time. It was now that he was writing the most finished of his sonnets, and when, too, his friendship with Vittoria Colonna made so deep an impress upon his life. Michelangelo's nature was never otherwise than responsive to those obstinate questionings that beset human life, but about Colonna's personality there hung much of the cloister, an influence which brought a more intense illumination with it. But an influence not less strong must have been the tender thoughtfulness of womankind that broke down that wilful solitariness of his disposition that had made him a stranger to the green pastures of life. If old age brought with it a sense of more willing dependence, he was nevertheless as vehement as ever. This Pietá is unfinished. Attacked with his customary fury of mallet and chisel, he went too deep into one of the Madonna's elbows, and he did not care to go on with it. He had to work at it early in the morning, with a candle stuck into his cap, that he might keep imself in health, as he said.

Michelangelo's career as servant to the Papal See began with the design for the unfortunate tomb which led Julius II. to commence the destruction of old St. Peter's. The tomb he never built, but he was destined to preside over the fortunes of the new Basilica, "raising the dome which dominates the Roman landscape like a stationary cloud upon the sky-line."

The old Basilica, as Constantine had left it a thousand years before, formed, with its surrounding courts and buildings, so picturesque a group that one doubts if anything has been gained by its removal. The great nave and aisles, the quadri-porticus or courtyards in front, and the fine Lombard campanile, were in fact left undisturbed until 1605, when, under Paul V. Michelangelo's design was added to, the plan being altered from a Greek to a Latin cross, and the existing tame and unsightly screen placed in front of it, which succeeds in entirely cutting off any view of the great church lying behind it.

The old buildings of the Vatican stand to the south, and the sacristy and Campo Santo to the north. A more various and interesting block can scarcely be imagined, forming, with its alterations and additions of centuries, a history of itself.

Bramante, the architect whom Michelangelo has referred to as plotting along with Raphael against his favour with Julius, commenced the present gigantic block in 1506 upon the plan of a Greek cross. He died in 1514, and Raphael was appointed to succeed him, with San Gallo, a practical architect, to assist him. Bramante was a good artist, and his design was bold and simple. His successors frittered it up, and converted the plan into a Latin cross. Raphael died in 1520, and Peruzzi took his place, reverting to Bramante's plan. Then Peruzzi died, and San Gallo, having a free hand, went on with his long nave and insignificant detail. The church, Michelangelo declared, would have been dark, inconvenient, and dangerous to public morals.

At last, in 1547, came Michelangelo's turn, and he again adopted the Greek cross. I think there is no shadow of doubt as to which is the more effective plan, when covered by a dome, to which the shorter arms of the Greek cross form a base, and draw the whole design together. The only position from which any idea can now be gained of the architect's intention, since Maderno's work has ruined the front, is from the east.

With this new office Michelangelo's troubles broke out afresh. He was growing old, and would gladly have avoided the tumults that always forced themselves into Papal enterprise. He would gladly have retired to Florence, where the Duke of Tuscany had invited him, but his holy master prayed him to remain for the sake of the building. But he was set to work upon St. Peter's against his will, he declares, and has served eight years gratis, and with the utmost injury and discomfort to himself. Nevertheless, since, as he admits, it would be the cause of a great ruin, and also a great sin did he leave just when he was on the point of vaulting his cupola, he would remain. So he sticks to his post, despite the backbitings of his enemies, who declared that he was in his dotage, and that the church had never fared so ill as under his direction. In his dotage he was not, and though he lived to an unusually great age, this affliction never overwhelmed him. But the old man suffered from many of the physical ailments that come with age—pains in the back that made it very difficult for him to go upstairs, and he was obliged to leave the personal superintendence to a clerk of the works.

Bramante's dome was to have been a half-sphere; Michelangelo's was elliptical, constructed like Brunelleschi's at Florence—that is, two shells, an inner and an outer, joined at their apex by the lantern, and meeting each other about a third of their height from the base. The internal effect of St. Peter's, with a soaring cupola, is too well known to you probably to need description. The impression of its vastness seizes upon you as something weird. You overlook the vulgarities of detail for which Bernini is largely responsible. They are but passing and temporal in distinction to that element of the eternal in which a great thought reposes.

In St. Peter's Michelangelo strove to render the infinite finite, to resolve the absolute of that philosophy upon which he was reared into the concrete. In architecture he had no model to lead him astray as he had in sculpture, and I am inclined to believe that it is while standing beneath this dome that you behold the man as you find him nowhere else. He did not see the work finished, but he left sufficient details to enable it to be completed according to his intention. He was hard upon eighty-nine years of age; by the coming March he would have been so. But on February 15 a friend writes to his nephew Lionardo, "I advise you to come as soon as possible from Florence, starting immediately, but not hurrying overmuch, because if, as God forbid, the master's life is in danger, you cannot get here with the utmost haste to find him still alive, for, owing to his great age and his disease, he cannot live a great while." Michelangelo died upon the eighteenth of the month, and was carried to his dear Florence, where he was buried in his parish church of Santa Croce.

"Now hath my life across a stormy sea,
Like a frail bark, reached that wide port where all
Are bidden, ere the final reckoning fall."

So opens one of his later sonnets.

Such were the outlines of this great man's life—great in spite of his many failures, in spite of his divided aims. Much of his life must remain a blank page, for he was not one to mix freely with others. But he was capable of great attachments. One of these was for his servant and assistant, Urbino, who died some ten years before his master. How greatly Michelangelo felt his loss you may gather from the following letter:—"I inform you that yesterday, the 3rd of December, at four o'clock, Francesco called Urbino passed from this life to my very great sorrow. He has left me sorely stricken and afflicted; nay, it would have been sweeter to have died with him, such is the love I bore him. Less than this love he did not deserve; for he had grown to be a worthy man, full of love and loyalty. So, then, I feel his death has left me without life, and I cannot find heart's ease." This letter surely could not have been written by a man such as his enemies loved to paint, full of envy, hatred, and malice. His nephew Lionardo, to whom he was devoted, and who became his inheritor, I have alluded to. To this youngster the sculptor pens a letter that is very characteristic of him also:—"Do not write to me again. Each time I get one of your letters a fever takes me with the trouble I have in reading it. I do not know where you learned to write. I think if you were writing to the greatest donkey in the world you would do it with more care. Therefore do not add to the annoyances I have, for I have already quite enough of them." A certain Tommaso Cavaliere was a staunch friend to him, and of the mutual affection between the sculptor and Vittoria I have already spoken.

Then he had several protégés in the shape of

buffoon artists, who if poor painters were excellent wits who made him nearly to burst himself with laughing. This, with Michelangelo's saturnine humour, was a curious hobby, yet it adds a human touch to our knowledge of him.

What may we add to these personal traits in order to explain the position that he held when alive, and which he still holds now that he is dead? His life must speak for itself. I will only add, in the first place, his abilities were quite exceptional. He has been placed with Dante and Machievelli as exhibiting with them the three greatest intellects that Italy has produced. He was also scrupulously upright, in a very corrupt, and indeed petty, age.

And what place can we assign him in the world of art? I would answer—one that he occupies alone. As M. Garnier says, "he made his own art." Never was man more self dependent. He was an era in himself, an interpolation in the history of Italian art. Not that he was free from the influences which had steadily grown, and were settling down upon art, but the turn he gave to them was a wholly individual one.

A fatality hung over Italian sculpture. Ever anxious to be free, to develop along progressive lines of its own, the ghost of the old Roman world was never entirely laid, and, like the Siren, she drew towards her all who lived within reach of her voice. With England, with France, this revival of classicism was to a certain extent an affectation, a cult. But in Italy it was part and parcel of the soil, and dyed with a purple hue its Mediæval sentiment. Upon Michelangelo this Nemesis descended in its full force. He wrestled with the inevitable. He sought by his Titanic power to tear from the dead age its secret, when it had none to tell. How many a time he was met with this silence we see by his unfinished works.

It is as idle to compare him to the Greeks as it is to compare him with the Tuscans. He is on the side of the Greeks, inasmuch as he took an idea for his theme. But he differs from them inasmuch as wherein the Greek ideas were always eminently simple, those of the Renaissance, influenced as they were by the school of Alexandrian sophistries, are as eminently involved. Consequently, much that the sculptor desired to convey to us is entirely lost upon us. The slaves of the Julian tomb, those upon the Medici tomb, must remain riddles.

He is on the side of the Tuscans, since he embodied his ideas with realistic effects rather than express an idea by an idea, that is by a generalised, idealised impersonation, which method we are accustomed to look for in sculpture. But he differs from the Tuscans, since he disregards those little details and niceties that they delighted in as masters in their crafts, and which give to their work such a lightness of conception and playfulness of touch. He cannot approach these in technical feeling.

Thus Michelangelo may hold an independent position, free from the jealousies of rival claims. His work is not better nor worse than anybody else's. It is just his own. Grecian or Mediævalist, you may admire it and suffer no condemnation.

WOLVESEY PALACE, WINCHESTER.

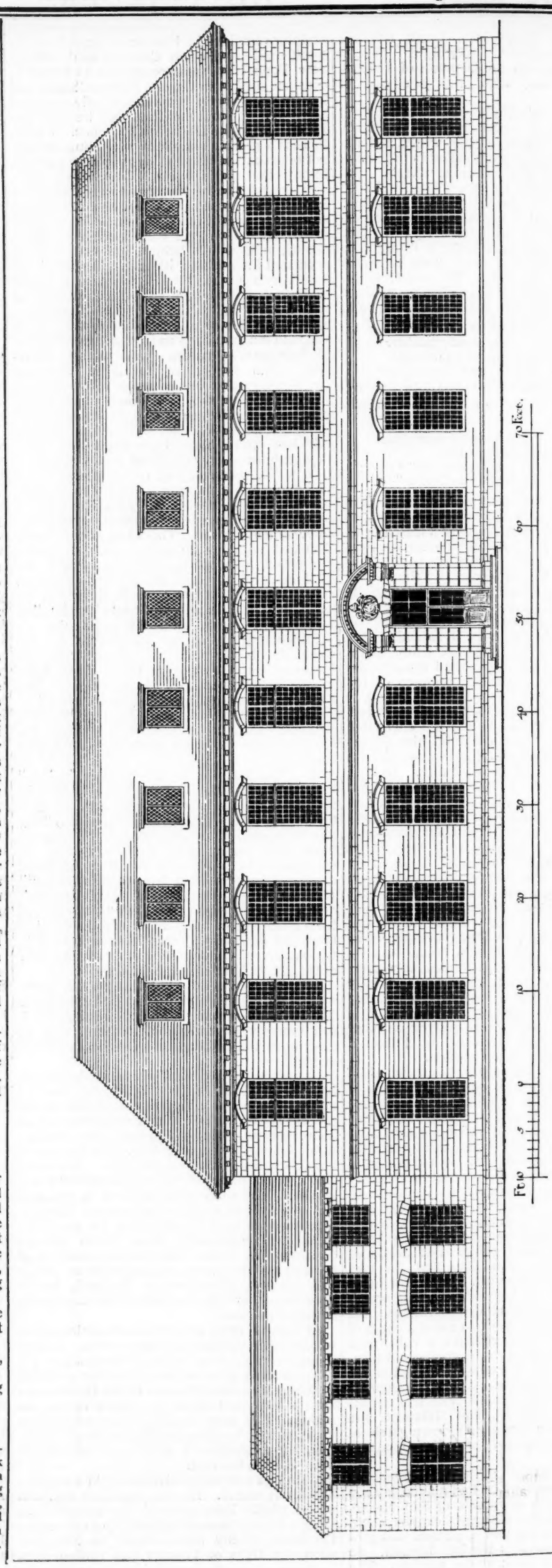
THE drawing shows the west elevation or garden front of the building, which was designed by Wren and erected by Bishop Morley (died 1684) and Bishop Trelawny (died 1721). The present unsymmetrical appearance of the front is probably caused by the demolition, in the early years of this century, of the south wing, which corresponded with the present low wing on the north side.

A curious feature in the arrangement of the courses is their gradual decrease in height from the ground upwards.

The cornice and the doorway in the centre, which have a later appearance, are of wood.

The illustration is from a measured drawing by Mr. T. B. Nicol.

PUBLIC WORKS, BARNOLDSWICK.—A Local Government Board inquiry was held at Barnoldswick on the 16th inst., into an application by the Urban District Council to borrow 12,500*l.* for the following objects:—Gasworks purchase, 2,000*l.*; sewerage, 1,840*l.*; water supply, 1,000*l.*; road roller and waggon, 500*l.*; and 2,500*l.* for the erection of an infectious diseases hospital on a site at Banks Hall. There was no opposition to any of the schemes.



Elevation of Wolvesey Palace, Winchester: Designed by Wren. (Measured and Drawn by Mr. Jas. B. Nicol.)

ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS.

A MIDLAND Counties District Meeting of the members of the Association of Municipal and County Engineers was held at Bilston, on Saturday, the 17th inst. The weather more nearly resembled midsummer than mid-September, and there was a fairly large attendance of members, mostly of the Midland Counties. Mr. J. T. Eayrs, of Birmingham, presided.

The members assembled at the Town Hall, where they were received by Mr. Councillor Harper, Chairman of the Urban District Council, Mr. Councillor Sankey, and other members.

The Chairman, in welcoming the members of the Association, said he hoped that their presence would not only enhance the estimation in which Bilston was held by the outside public, but would be a source of instruction to their visitors.

Councillor Sankey said that they had two things which would be of interest to the members of the Association—an abundant water supply, and a technical school, which, considering the population and rateable value, was superior to any town in the country.

Mr. Eayrs acknowledged the official reception given to the Association, and apologising for the absence of the President (Mr. Robson, of Willesden), said they knew that surveyors of large districts had many claims upon their time. Although situate in the black country there was a good deal of energy in the carrying out of sanitary works; though there was no doubt that the conditions under which the industrial classes lived entitled them to a good deal more consideration than health resorts like Leamington, Cheltenham, and Bath.

On the proposition of Mr. Greatorex (West Bromwich), seconded by Mr. Marston (Sutton Coldfield), Mr. J. S. Pickering (Nuneaton) was re-elected Hon. Secretary of the Midland Counties District.

Mr. C. L. N. Wilson (Bilston) then read a paper on "Seven Years in a Black Country Town." After a historical review of Bilston, the author proceeded to describe the various public works of a municipal and sanitary character. The baths and washhouses were originally a private speculation, but turned out a failure, and in 1870 were purchased by the Town Commissioners and put into order at a total cost of 1,100*l.* In 1895 the baths were altered and enlarged at a cost of 3,500*l.*; the alterations including the laying down of an electric plant for lighting the building. The cost per unit for this installation was $1\frac{7}{16}$d., and there had not been the slightest trouble with it from the day it started. The Town Hall, a stone building in the Italian style, was erected in 1871 and enlarged in 1880; and, in addition to the usual municipal offices and large assembly room, provided accommodation for the free library. The technical school, which was built of red brick with Doulton's terra-cotta quoins, plinths and jambs, was Italian in style. It contained an engineering and metal-working room, fitted with gas-engine, lathe, drilling machine, four smiths' hearths, &c., wood-working room, cooking room, modelling and casting room, drawing rooms, large examination hall, chemical laboratory, &c. A museum was also provided, and in the entrance and examination halls a number of valuable pictures, loaned or given by various gentlemen. The building was erected from his (Mr. Wilson's) design, the contract for the building being 5,087*l.*, and the extras 10*l.* os. 8d. In this respect Bilston could show the country a noble example. The total cost of the building and fittings was equal to about one-seventh of the total rateable value of the township, and yet it was built by public subscriptions, and grants from the Staffordshire County Council and the South Kensington authorities, without putting a penny on the town's rates. To show how much the people valued the school it was only necessary to state that during the last session out of a population of about 25,000 there was an average weekly attendance of over 800 students. Mr. Wilson then proceeded to describe the water supply of the township, which was formerly obtained from the Wolverhampton supply, the agreement being terminated, after litigation, in 1893, by the Bilston Commissioners agreeing to pay the Wolverhampton Corporation the sum of 9,000*l.* The Commissioners, in accordance with this agreement, promoted a Bill which became law in 1893 after some slight opposition. In 1895 another agreement was entered into between the two authorities, under which Bilston agreed to pay Wolverhampton the sum of 7,750*l.* for the right to supply such portion of the Coseley district as was in the Wolverhampton area of supply, and for the mains, hydrants, &c., in the district. The water area for supply now consisted of the township of Bilston, such portion of the Coseley area as was in the Wolverhampton area of supply, and the parishes of Himley, Womburn, Swindon, Trysull, and Woodford. The average daily amount of water pumped was about 840,000 gallons, or about 26 gallons per head per day for all purposes; of this about 5 gallons per head was for trade purposes. The water rate was practically 7 per cent. per annum upon the rateable value. The whole of the works were designed by Mr. Baldwin Lalham, and he (Mr. Wilson) acted as resident engineer. In 1892 a test bore-hole was put down 4 in. in diameter and 66 ft. deep, and water was first met with at a depth of 30 ft. below the surface. In October, 1893, a contract was entered into with Messrs. H. Hughes & Sons to sink the well and drive the adits, and they commenced work on January 15, 1894. On June 13 the well was down 134 ft., and the yield of water was 801,700 gallons in twenty-four hours. From then up to August 8 the water could not be got out, and Messrs. H. Hughes & Sons threw up the contract; from that time Mr. John Hughes, their surety, carried on the sinking of the shaft, and on September 3 a third pump was got to work, and the men commenced sinking again on September 10 and went on until September 17, when the pit was down 142 ft.; at this point the pumps were beaten again. The men got to work again on October 9, but failed again on October 15, with the well only 149 ft. deep. It was then decided to sink a second shaft and connect the two by means of headings and after this was done it was found he still could not go on with the sinking, and it was found necessary to put down their permanent pumps, and allow the contractor to use them in addition to his own; by this means the wells were got down to their full depth, and the headings driven for a short distance, and the brickwork finished in December, 1897, as it at present stands. For the last sixty-seven days upon which it was necessary to pump from the bottom of the shaft, whilst the cast-iron tubbing, &c., and the lower portion of the ironwork was got into position, an average of 1,514,044 gallons were raised per day. The shafts were both sunk in a trough in the bunter beds, the particular bed being the upper soft red sandstone, which at the point was about 160 ft. thick. The two shafts were connected by a heading 6 ft. by 4 ft., and 45 ft. long. The steining in each case consisted of the best Staffordshire blue bricks, built in cement mortar, the upper 15 ft. being 14-in. work, and the remaining portion 9 in. The water was carried down behind the walls by means of perforated cast-iron pipes packed round with gravel. The original contract was 3,281*l.* 10s. 5d., and the cost of the work, including pumping, 6,822*l.* Of this latter sum no less than 2,208*l.* 9s. 10d. represented money paid for extra pumping alone. The reservoir was situate at Goldthorn Hall, a distance of 6,617 yards from the pumping station at the Bratch. It was a covered service reservoir only, constructed only of cement concrete with a floated face. The engines at the pumping station at the Bratch were of the vertical triple expansion type, and surface condensing, with the three force-pumps placed directly underneath the crank shaft, and two well pumps, about 140 ft. from the surface of the well. The boilers were Hornsby's water-tube boilers, with about 1,426 square feet of heating surface. They were tested to 200 lbs. pressure, and the working pressure was 145 lbs. to the square inch. The water mains were 2 in., 3 in. and 4 in., with hydrants, sluice valves, and air valves. The mains had to carry an average pressure of 160 lbs. on the square inch. For the prevention and detection of waste he had divided the whole area into eight separate districts, each controlled either by a Deacon, Siemens, or Kennedy water-meter. The total cost of the water undertaking to date was 60,564*l.* 18s. 10d., and with the engineer's charges, manager's house, and other items, the total cost would not be much under 70,000*l.* The previous cost was 6d. per 1,000 gallons; the first year's cost of their own supply 4½d. per 1,000 gallons.

Mr. J. S. Pickering (Nuneaton) pointed out that there was a reservoir storage capacity of only one day's supply, whereas it was usually considered necessary to have a storage capacity equal to two or three days' supply. He wished to know whether that was part of the original plan of Mr. Baldwin Latham.

Mr. Price (Birmingham) presumed that the present pumping cost of 2½d. per 1,000 gallons was due to its being a new installation, and that the cost would eventually be reduced to about 1d. per 1,000 gallons. The water seemed rather hard with 10 degrees of permanent hardening, and it was surprising to him that the Council had not gone in for a softening process.

Mr. Clarson (Tamworth) said that at Tamworth they supplied a population of 18,000 with water at a cost for pumping of a little over 1d. per 1,000 gallons.

Mr. Smith (Kettering) wished to know if there was any prospect of the baths becoming a paying concern, taking into consideration the working expenses and payments on capital account. They made some inquiries at Kettering and came to the conclusion that baths would involve a charge upon the rates of 300*l.* a year.

Mr. Eayrs (Birmingham) pointed out that in speaking of the cost of 4½d. per 1,000 gallons for water they must take into consideration the fact that the undertaking started with an incubus of 16,000*l.* in the form of payments to the Wolverhamption Corporation. He congratulated Mr. Wilson upon the way in which his contracts had been carried out and the smallness of the extras.

Mr. Wilson, in replying to the discussion, stated that the scheme was got out for Bilston alone, and the Coseley district had since been added, so that when the plans were originally prepared they had a two-reservoir supply. He agreed that it would be advisable to have a larger reservoir supply than at present. With reference to Mr. Price's remark as to the cost of pumping, it was not fair to estimate the ultimate charge from the figures given for the first year. They had to pay scheduled prices for much of the work for some years, and the charges would be less in subsequent years.

The members visited the Springvale steel furnaces of Sir Alfred Hickman, the water-pumping station, and the Technical School Mr. Harper, Chairman of the District Council, entertained the members to luncheon at the Himley Arms Hotel, and at the conclusion of the proceedings the members dined together under the presidency of Mr. J. T. Eayrs, at the Technical School.

THE DETERIORATION OF PAPER.

BEFORE the commencement of the present century paper was made almost exclusively of hemp, flax, and cotton; but these substances form but a small proportion of the raw material used by the paper makers of to-day. Almost any description of cellulose can be converted into paper, and consequently the variety of natural substances which can be employed in the manufacture of paper is very large.

As a matter of fact, however, the material now principally employed is wood cellulose obtained from the trunks of forest trees.

It has long been suspected that modern paper is less durable than the paper manufactured in the Middle Ages, and in order to obtain definite information on the subject, a committee of the Society of Arts was formed to investigate the matter. This committee has concluded its investigations, and has now published an interesting report, which can be obtained from the secretary of the Society.

The committee ranges the paper-making fibres into the following four classes:—

A. Cotton, flax, hemp.
B. Wood celluloses (*a*) sulphite process; and (*b*) soda and sulphate process.
C. Esparto and straw celluloses.
D. Mechanical wood pulp.

It is found that all grades of paper are liable to disintegration and discolouration; and apparently the Committee is of opinion that the better classes of modern papers are as durable as the Mediæval papers.

For book papers required for publications of permanent value, it is specified that not less than 70 per cent. of the fibres of the paper should be of class A; that the sizing should be performed with not more than 2 per cent. of resin, and should be finished with the normal acidity of pure alum; and that the "loading"

must not cause the total mineral ash of the paper to exceed 10 per cent.

For written documents of value, paper made with fibres of class A only should be used. The paper should be as pure as possible, and should be sized with gelatine instead of with resin.

At the end of the report a précis of the committee's correspondence with publishers and paper manufacturers is published. This correspondence is exceedingly interesting, but is chiefly remarkable as evidence of the very conflicting opinions which exist regarding the quality of modern paper.

Illustrations.

DESIGN FOR ENTRANCE GATES AND ARCHWAY GRILLE.

THIS design, by Mr. John J. Shaw, was exhibited at the Royal Academy of this year.

It is intended that the main portion of the design should be in wrought and chiselled iron; and for certain other parts, such as the wings of the figures, wreaths, &c., an aluminium alloy should be used, as giving a play of silvery colour, and lightening the work, both in effect and in actual weight.

THE NEW GALLERIES OF THE MUSEUM OF NATURAL HISTORY, PARIS.

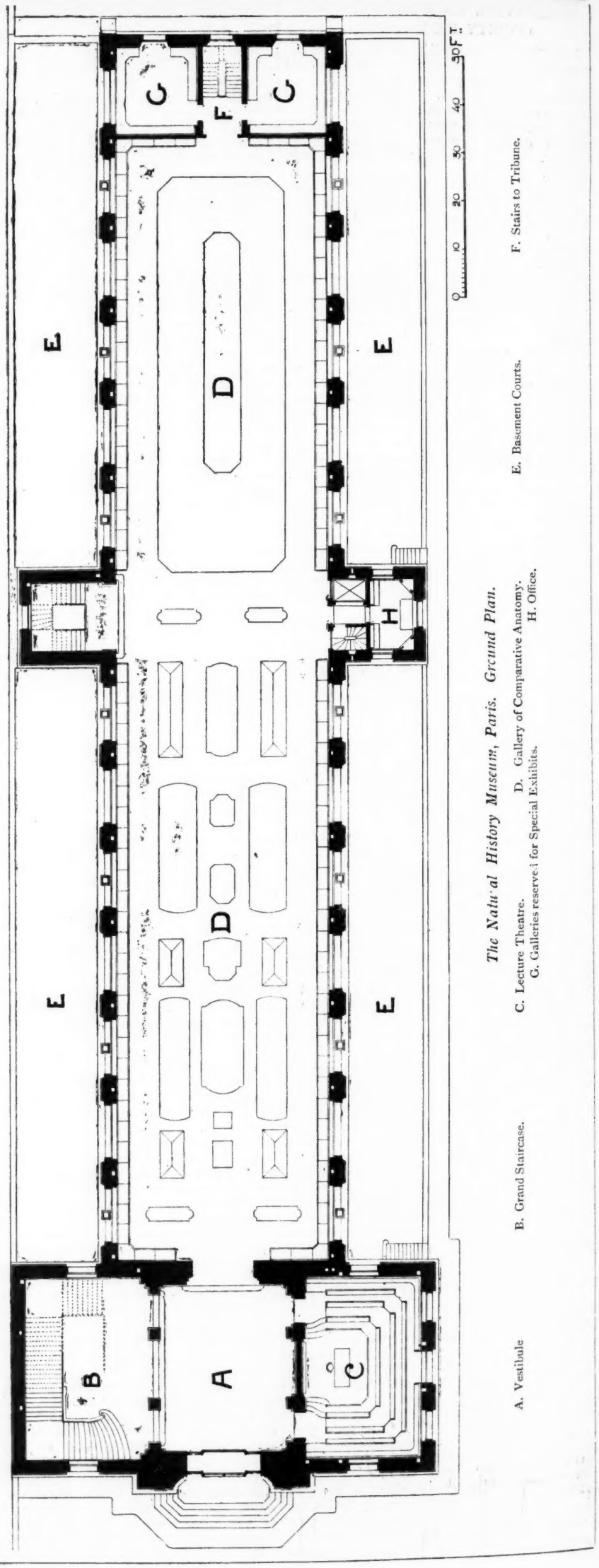
THIS fine building, which has only lately been inaugurated, is due to the talent of M. Dutert, the architect of the famous Galerie des Machines in the Champ de Mars. The Museum, situated in the Jardin des Plantes, may be considered as one of the most original and successful of works of architecture of the present day. The form and aspect of the building, and its decoration, both exterior and interior, is in clear and perfect harmony with the purpose for which the building is intended; the simple and imposing appearance of the monument, which is constructed of red brick and stone, harmonising most agreeably, is relieved by the charming style of decoration, all of which is drawn and composed from subjects of natural history and vegetation, for the chief idea of the architect was to make the decoration the logical expression of the purpose for which the building is intended. The pediments, panels, bas-reliefs, capitals, &c., are decorated with scenes of animal life composed and executed by well-known Parisian sculptors. Tigers and cats are seen climbing along the mouldings surrounding the windows: and insects and shellfish, alternating with clusters of flowers and seaweed, fill the frieze and string courses. The ironwork of the entrance gateways, the staircase and balconies, is composed of ingenious interlacing of plants and animals, and the ceilings of the large rooms are decorated with graceful floral panels.

The plan of the building is simple but well arranged, as may be seen by the plans of the ground floor which is appended; the rooms are well lighted, heated, and ventilated.

The twelve fine decorative panels by M. Cormon, which formed one of the attractions of the last Salon, represent "The conquest of the earth by Humanity" from the earliest times, when man uncultured and unclothed sought his food in the crannies of the rocks on the sea shore, and devoured it in the manner of the wild beast, tearing it apart with his teeth, to later times, when the gradual dawn of civilisation induced man to seek a certain comfort and well-being and interest himself in the primitive arts. In some of the paintings representing the earliest forms of human life, the only half-human being of the Stone Age, M. Cormon has shown a remarkable degree of what may be called historic imagination; but as we are not able to give the whole series, we have preferred to illustrate four of the paintings which deal with man in the dawn of civilisation and the first beginning of arts and crafts; the four representing Hunting, Fishing, Metal-forging, and Pottery.

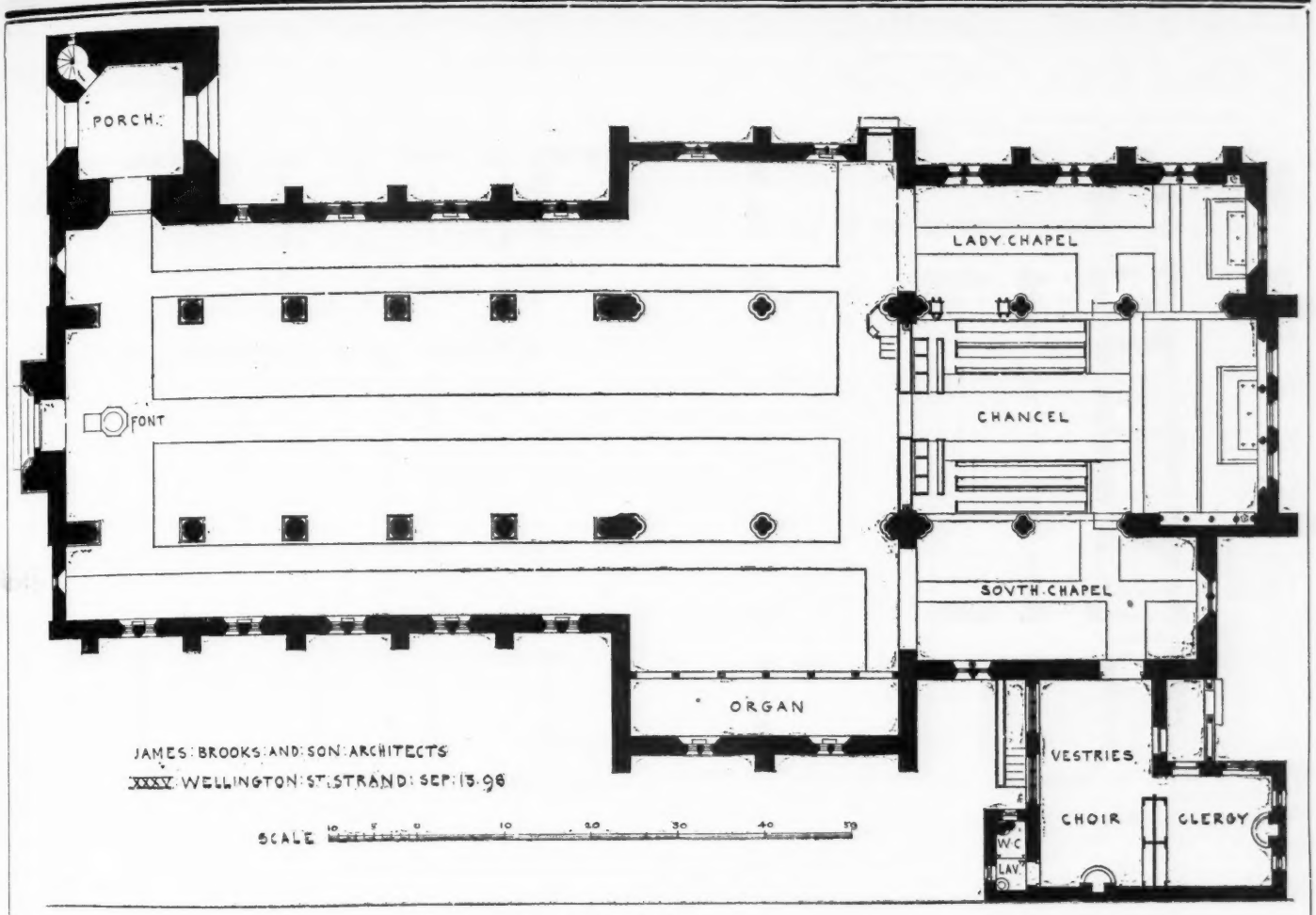
ST. LUKE'S CHURCH, ENFIELD.

THE promoters for building this church are desirous to limit the cost to the lowest amount possible, at the same time the building to be of a substantial character: the chancel to be spacious, a Lady Chapel for daily service, and



The Natural History Museum, Paris. Ground Plan.

A. Vestibule
B. Grand Staircase.
C. Lecture Theatre.
D. Gallery of Comparative Anatomy.
E. Basement Courts.
F. Stairs to Tribune.
G. Galleries reserved for Special Exhibits.
H. Office.



St. Luke's, Enfield. Plan.

the entire church to give accommodation for about 800; all the seats to be arranged for adults. With such instructions the most simple forms had to be adopted in the arcading, windows, roofs, &c., the height being restricted to meet the small sum to be expended. The church consists of a nave, chancel, and on the north of the chancel the Lady Chapel. On the south is another chapel; the vestries lead out of this chapel. The two eastern bays of nave on both the north and south side form the transepts, the south one projects some feet more than the north to give space for the great organ, the choir organ being placed in the first arch between chancel and Lady Chapel, and the console in the first arch between chancel and south chapel. The tower is planned to be at the north-west angle, and is designed to be erected at a future time without disturbing the use of the church. The bricks for facings, both inside and out, are the Bracknell bricks from Mr. T. Lawrence's field. Bath stone is used, but sparingly on account of cost, for piers, arches, and windows. The roofs are covered with Broseley tiles. A flêche is placed at the junction of transepts and nave to contain the sanctus bell. The entire cost, to include fittings, heating, and architect's charges, is 8,000*l.* Messrs. James Brooks & Son are the architects. The drawing was exhibited at the Royal Academy of this year.

BEECH GROVE CONGREGATIONAL CHURCH, NEWCASTLE-ON-TYNE.

THE above building was opened about six months ago. The design was selected in open competition; Mr. Cubitt, of London, being the assessor.

The plan is arranged with the object of accommodating a large congregation in such a way that all may hear conveniently and without any obstruction of view. There is accommodation for 488 persons on the ground floor and for 216 persons in the end and transept galleries; 20 in. is allowed for each person, and the seats are 2 ft. 11 in. centre and centre. Particular attention has been given to the entrances and exits; the ground floor and galleries can be cleared at four different points. Every portion of the building is well lighted, there being a large window over the choir, and the vestibule has direct light over the cloak rooms.

The hall is arranged to be used for lectures, meetings, &c. The galleries over are divided into classes for use as a Sunday-school. In connexion with the hall there are ladies' and gentlemen's retiring rooms, also kitchen, &c. Above these rooms are arranged a large meeting room, ladies' parlour, and conveniences. The caretaker's rooms are over the hall at the opposite end.

A simple treatment of fifteenth century architecture has been adopted, reliance being placed more upon the grouping of the parts, owing to the sum at disposal being limited. The principal feature of the interior is the groined roof at the crossing of the transepts. The external walls and the interior arcading are of stone. The general finishing of the interior is plaster. The roof is divided into panels with moulded ribs and principals, and the spaces filled in with boarding. There is a clouded dado in passages and behind seats. The walls of the choir are panelled in pitch pine. The roofs are covered with green Westmoreland slates.

The windows are filled with tinted cathedral glass in leaded patterns. The vestibule is laid with wood block flooring and the entrances are tiled. The heating thoughout is by means of hot water on the low pressure system. The ventilation is carried out by means of air shafts in the roof, communicating with a ventilating turret. The lighting is by electricity. The total cost was 7,900*l.* Mr. G. H. Mauchlen, of Newcastle, was the contractor, and Mr. Stephen Piper, of the same place, the architect.

COMPETITIONS.

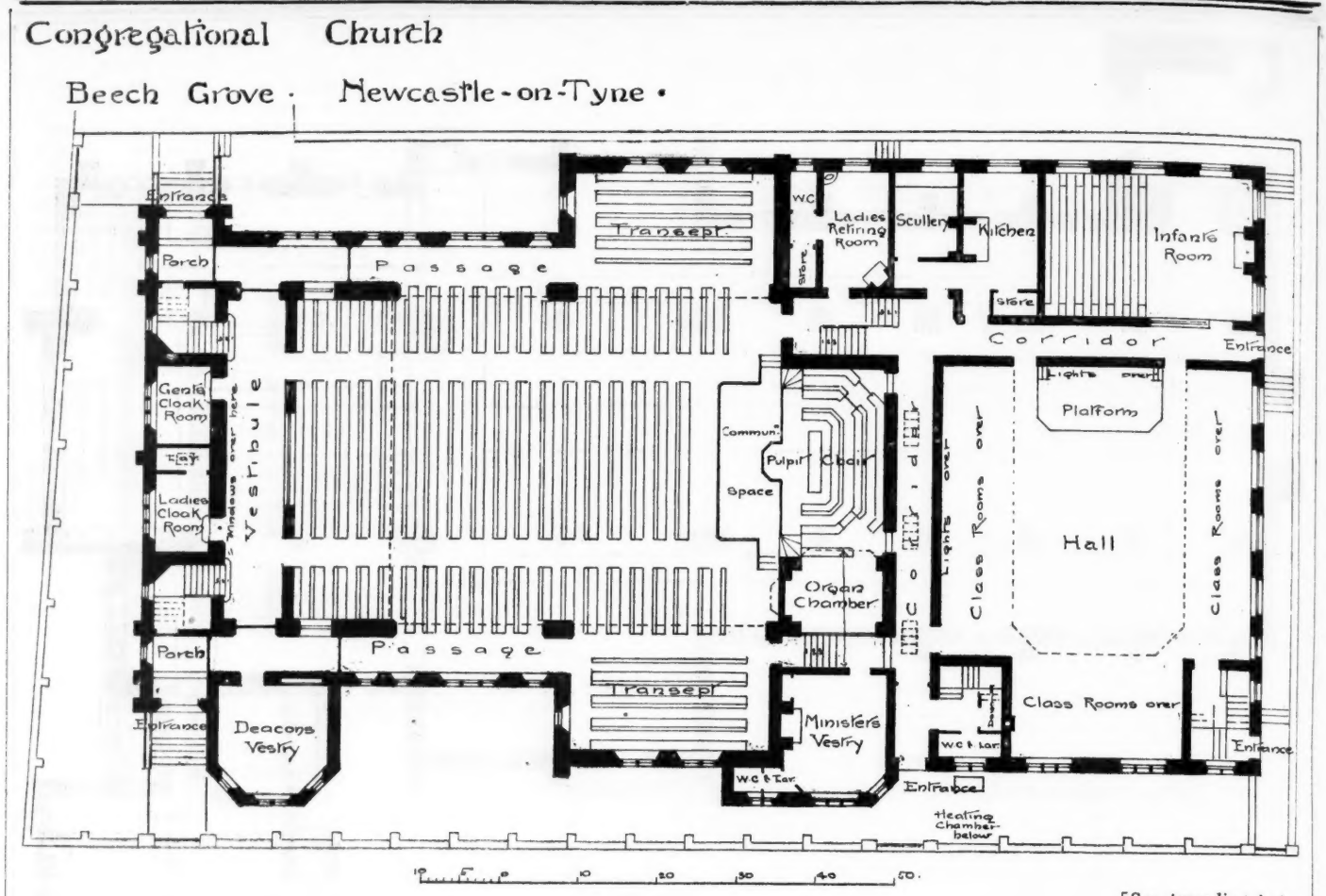
THE VICTORIA TOWN HALL, SINGAPORE.—The following awards were, on July 30, 1898, made by the Diamond Jubilee Permanent Memorial Committee, Singapore, on the plans received by them for competition for the proposed Town Hall. The first premium of 200*l.* was awarded to Messrs. Francis Sills, A.R.I.B.A., and W. A. Francken, A.M.I.C.E., of Norfolk-street, Strand, London; the second premium of 100*l.* to Mr. William A. Tunstall, of Colombo. The plans (Design A) of Messrs. Swan & Maclaren, of Singapore, are highly commended. The plans of Messrs. R. L. Sevenoaks and D. G. Lavelle, A.M.I.C.E., of Bangalore, India, are commended.

ST. PANCRAS BATHS.—The Vestry of St. Pancras on Wednesday considered a report by the Baths' Committee in reference to the applications invited by advertisement from architects who have had experience in designing and carrying out public baths and washhouses, and who are willing to submit designs for the proposed new baths to be built in the Prince of Wales-road. The committee mentioned that thirty-six applications had been received, and that on a show of hands the following six were chosen as having, in the opinion of the committee, the best qualifications for this class of work:—Thos. W. Aldwinckle, 1, Victoria-street, S.W.; R. Stephen Ayling, Parliament Mansions, Victoria-street, S.W.; Harnor & Pinches, 5, John-street, W.C.; I'Anson & Co., 7A, Laurence Pountney Hill, E.C.; F. J. Smith, Parliament Mansions, Victoria-street, S.W.; Spalding & Cross, 15, Queen-street, E.C. The committee recommended that the foregoing architects should be invited to compete for the new baths and washhouses, and this proposal was agreed to. The Vestry were also asked to invite the President of the Royal Institute of British Architects to communicate the names of three gentlemen competent to advise the Vestry on baths architecture, for the selection of one for the appointment of assessor to advise and report on the designs that are to be submitted. The recommendation was unanimously adopted.

ARCHITECTURAL SOCIETIES.

NORTHERN ARCHITECTURAL ASSOCIATION.—This Association is offering to students (and associates not in practice, nor yet twenty-five years of age) a first prize of 2*l.* 2s., and a second prize of 1*l.* 1s., for the best set of drawings or "Testimonies of Study," as required by the Royal Institute of British Architects, to be submitted for their final examination. Similar prizes will also again be given for the probationary work for the intermediate examination. The Association is thus giving important help to the objects of the Institute.

NEW TOWN HALL, COLCHESTER.—The Local Government Board has sanctioned the borrowing by the Town Council of Colchester of sums amounting to 34,136*l.* for the provision of a Town Hall and public offices. The buildings are estimated to cost 35,560*l.*



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ARCHÆOLOGICAL SOCIETIES.

SUSSEX ARCHÆOLOGICAL SOCIETY.—A party of members of this Society visited Michelham Priory on the 19th inst., when Mr. H. Michell Whitley gave some account of the history of the edifice. The *Sussex Daily News* reporting the visit states that in the course of his remarks the lecturer said that the priory was founded in the early part of the thirteenth century by Gilbert de Aguila, of Pevensey Castle, Lord of the Eagle, and the last Lord of Pevensey of his race. The foundation was for Austin Canons or Black Canons regular of the Order of St. Augustine. Gilbert gave to the Priory his lordship of Michelham, his Park of Pevensey, comprising between 800 and 900 acres, meadow lands, &c., timber for their church and buildings, and the churches of Hailsham and Leyton. Here upon a rich soil they erected their Priory buildings, which they surrounded by a moat, with the Decker, a great common, on the west and a forest on the north. The entrance gateway, which was almost intact, dated from the latter part of the fifteenth or the early part of the sixteenth century. It was approached by a bridge of solid masonry, a timber bridge or drawbridge reaching over the gap now spanned by the small arch. He did not think that a regular drawbridge, with chains, as at Hurstmonceux and Bodiam, had ever been used, but probably there was a light bridge which could be raised whenever necessary. Below the gatehouse was a room said to be a dungeon, but he thought it was more probably used as a cellar; while above the archway were two rooms in the tower with fireplaces, which were worthy of inspection. The almonry and guest-house for poor people probably stood on the bank at the north-east of the gatehouse, where numerous remains of buildings had been found by Mr. Gwynne. At all events, they stood somewhere in the outer court, and were an important adjunct to the Priory. That building itself, standing back from the gatehouse, was an Elizabethan house, about two-thirds of which had been pulled down to the ground, and to the third which remained had been added a building with mullioned windows, which was not a part of the original priory. Around a square known as the Cloister Garth stood the conventual church and buildings. In 1398 the latter were spoken of as in a ruinous condition, some in part having actually fallen down; and again in 1478 the two mills belonging to the priory were in utter ruin, and the dormitory house with other houses and buildings was in a bad condition. Extensive repairs must have followed, however, for in 1535 the buildings were returned as being in good order. With the aid of a plan the lecturer indicated the probable position of the various priory buildings. The church, which in this instance, he thought, was situated to the north—his theory being that the position of the church was determined largely by the slope of the ground and questions of drainage—was aisleless and cruciform, with a central tower. On the east side of the cloister garth were the sacristy, a slype to the infirmary and the monks' cemetery, the chapter house, the regular parlour for conversation, and the warming house, where the brethren might have a fire, the dormitory for the canons being overhead on this side; on the south was the frater and kitchen, and on the west the cellarer building with the abbot's chamber.

Books.

Lincoln, the Cathedral and See. By A. F. KENDRICK, B.A. London: George Bell & Sons. 1898.

IT is an objection to any uniform series of volumes dealing with many subjects, however similar those subjects may be, that great and small must be treated at very much the same length. The subject must, in fact, be fitted to the number of pages, a serious inversion of the proper procedure. This incidental and unavoidable difficulty is felt even in such popular handbooks as "Messrs. Bell's Cathedral Series," and one can imagine some enthusiastic admirers of Lincoln Cathedral feeling hurt that the account of it should be put into a volume of about the same size as that given to, say, Chester or Rochester. They need not, however, fear. The structure and its story have in this case suffered in no way; the incidental matter, which in some of the other volumes is considerable, is here confined to a list of bishops, occupying but five pages; all the rest is given to the history and description of the building, and Mr. Kendrick tells his tale with discriminating appreciation and an amount of literary skill that makes the historical chapter, at any rate, as "readable" as a romance.

Lincoln Cathedral has more claims upon the interest of both the architect and the archæologist than most. The exceptional beauty and variety of its Early English details, its beautiful "angel" choir, its peculiar Galilee and curious west front especially appeal to the former; while the fact that its history rests upon clear and abundant documentary evidence, and reveals some things that would otherwise hardly be credible, attracts the latter. The author only follows most observers in condemning the design of the west front of the building, but we think he thereby makes a mistake. It is, no doubt, only "a screen," and it no doubt also cuts off the bases of the west towers; but in itself it is a fine piece of scenic architecture, with a breadth, a richness, and a grandeur exceedingly rare. He seems disposed to accept Parker's startling theory that St. Hugh's choir was originally covered with a wooden ceiling, and that the walls and piers were thickened when the vaulting was inserted, a theory which Mr. Parker rested on facts susceptible of a simpler explanation, and which practical architects cannot see their way to accept, notwithstanding that if the peculiar twisted vaulting is original, it is probably the earliest fully developed Gothic vault in the country, and, to say the least, an odd "conceit" for a man who was attempting such work for the first time. Mr. Kendrick quotes Viollet-le-Duc, the late Precentor Venables, and other authorities to show that St. Hugh's Early English work is purely English in design and execution; Viollet-le-Duc says there was nothing of the sort in France until thirty years later; but the plan of St. Hugh's apse recovered by Mr. Pearson in 1886-87 is too French to bear out this theory in its entirety. That the detail and workmanship are purely native there can be no doubt, but the plan seems obviously inspired from abroad. Mr. Kendrick acknowledges his indebtedness to the late Precentor Venables, whom he frequently quotes; it was his researches, mainly, that brought its records to light and made them accessible; he studied the building so long and so thoroughly that he almost attained to that sixth sense which comes to those who have spent half a lifetime in solving architectural problems; and it is to him we all owe much of what we know about Lincoln Cathedral.

The Phyllades of the Ardennes compared with the Slates of North Wales. Part I. By T. MELLARD READE, F.G.S., and PHILIP HOLLAND, F.I.C. Liverpool: C. Tinling & Co., Victoria-street. 1898.

THIS pamphlet, forming the first part of a work describing the slates of the Ardennes and

North Wales, is more interesting, perhaps, to the geologist and chemist than to the architect, although Mr. Mellard Reade is well-known as an architect in Liverpool. It is a reprint from the "Proceedings of the Liverpool Geological Society" for 1897-98. The memoir is in great measure a compilation of the researches of Professors Renard and Gosselet so far as the Ardennes phyllades are concerned; but much original matter, mainly of a petrological and chemical nature, is added by the authors. So far as the work has progressed, it cannot be said to be exhaustive, the number of phyllades and slates compared being few; neither are the original petrological details of a very advanced character. The authors are careful to describe their method of chemical analysis adopted, which is useful. Material for the work was prepared by crushing the specimens of slate in a steel mortar and sifting the crushings, which were afterwards reduced to the requisite fineness in an agate mortar. The powder so obtained was dried in 100 deg. C., and preserved in corked tubes. Mere moisture was not ascertained, but was estimated to be from three- to four-tenths of one per cent. in some specimens. For the combined water, the plan was to strongly ignite in a current of dried air, and to collect and weigh the water so expelled. Crushed rock free from dust served for specific gravity estimations, which were obtained with the picnometer. The general scheme of analysis is then outlined.

Perhaps the most interesting part of the work to us is the table of chemical analyses at the end. The Welsh slates selected show a range of silica remarkable for its narrow limits, though two specimens from Penrhyn yielded 57·75 and 63·01 respectively, with a more constant proportion of alumina at 16·44 and 16·28 per cent. The authors observe that the specimen having the highest percentage of silica is amongst a class reckoned to be the strongest and most durable for roofing purposes, and more resistant to the weather. It is also stated that this slate is proved to be very siliceous, both by chemical analysis and the microscope, and we notice that in the table the percentages of silica as quartz are given, which is a step in the right direction. The proportion of ferric oxide reaches as high as 10·84 in one of the purple Penrhyn slates, and all examples analysed showed the presence of titanic oxide, magnesia, potash, and soda. An American slate from Vermont was found to possess as much as 3·62 per cent. of lime, with a corresponding proportion of carbonic acid. But we need not enlarge on the results, which bear evidence of having been carefully ascertained. We congratulate the authors on the results of the first section of their work, and trust that future parts will contain more information of a truly petrographical nature, together with some physical attributes of the slates dealt with. If, at the same time, the quality of the materials can be discussed from the architects' standpoint, so much the better—though we are perfectly well aware that this is foreign to communications prepared for geological societies, as these latter are at present constituted.

Geology for Beginners. By W. W. WATTS, M.A., F.G.S. London: Macmillan & Co., Limited. 1898.

As a work dealing with the elements of geology from a purely philosophical standpoint this is excellent; but the attempt made to treat of the practical applications of the science is sketchy and worthless. However, we like the plan of the first part of the book, which leads the student from the known to the unknown, somewhat after the Lyellian method. Familiar objects are selected for examination. A piece of granite is taken in hand, for instance, and its constituents examined, at first in a very elementary way, and afterwards in a more finished manner. Even at the commencement the microscope is made use of, a method much to be commended. Granite is then compared with other types of rock, all being treated alike. The general statements made are sometimes of a loose character, as for example, in the paragraph headed "Limestone" (p. 17) where the beginner is told that that rock "at first seems to be crystalline like granite," which appearance does not by any means apply except to a limited section of limestones. Again, limestone is made "of fragments of animals such as live on the sea bed," which does not take into account fresh-water limestones, nor those of chemical origin, nor that common building stone, oolite. Of course, the author knows better, and, in a subsequent chapter dealing with "classification," puts the matter right enough; but even preliminary generalisation must have "saving clauses." The "Study of Rocks out of Doors" is a charming chapter, and, like all other parts of the work, is excellently illustrated. The sections devoted to physical and dynamical geology are simple and to the point, and one of the best chapters in the book is that dealing with "Minerals." The author is strong on igneous rocks, consequently they are described at some length; we question whether some parts are not too advanced for the "beginner." The micro-section photographs are too small to convey an adequate idea of the structure of most of the rocks depicted.

The chapter on fossils is useful and well balanced, except in regard to the vertebrata, which are dismissed in a short paragraph. That portion of the book dealing with stratigraphical geology leaves much to be desired, especially in regard to the Eocene; it is information to us that the "clays, loams, and pebble beds of the Reading series are of estuarine character near the town of that name, but become marine near Woolwich." We are glad to observe that the author omits to mention the so-called "Oldhaven and Blackheath" series. In regard to the historical portion, the names of many of the fossils depicted are incorrect, but we cannot enter into that matter here. It seems hopeless to make the petrographer appreciate palæontology.

The "Origin of Landscape" is a useful elementary outline of the effect of the weather in producing different types of scenery; and the concluding chapter deals with "Economic Geology"—after a fashion.

Applied Geology. Part I. By J. V. ELSDEN, B.Sc. (Lond.). London: *The Quarry* Publishing Company, Limited. 1898.

IT is premature to say how far this work will be useful to practical men, as so little appears in this first part that is not of interest merely to students of elementary geology. As the author points out, "these preliminary chapters scarcely give an adequate idea of the scope of the completed work." We presume, however, that, as the articles are appearing in *The Quarry*, they will have special reference to the requirements of stone owners and quarry-masters. The work is clearly written, and bears evidence of having been carefully compiled.

The Oxyrhynchus Papyri: Part I. Edited with translations and notes. By BERNARD P. GRENFELL and ARTHUR S. HUNT. London: Kegan Paul & Co., Bernard Quaritch, Asher & Co., and Henry Frowde. 1898.

THE discovery of an immense hoard of Egyptian papyri in the winter of 1896-7 by Messrs. Grenfell and Hunt, working for the Egypt Exploration Fund, has been the occasion of the founding of a new branch of that society for the exploration of the Græco-Roman remains in Egypt, and the publication of the wonderful collection already in their hands. It was in the rubbish mounds of the ancient city of Oxyrhynchus that the hoard of waste papyri was unearthed. This city is now marked by the village of Behnesa, lying about 120 miles south of Cairo, on the edge of the western desert. It was from the earliest times the capital of its nome or province; and later, as a Christian city, was renowned for the number of its churches and monasteries. The papyri found number over two thousand in fair preservation, besides innumerable fragments, and range from the first to the seventh century A.D. Probably the best account of this unrivalled discovery is that printed in the annual Archæological Report of the Society for 1896-7.

Messrs. Grenfell and Hunt have published in this volume the Greek text of two hundred and fifty-eight papyri, more or less complete, with an English translation. The general interest of this collection of ancient documents, mostly private or business letters, in regard to social interest, can hardly be over-rated, even in this small selection from the number of papyri found. We are brought face to face with the private affairs and private feelings of people of the early centuries of the Christian era, their manner of doing business, their complaints about being unfairly treated, their invitations to dinner, &c. One's curiosity is raised to the highest degree as to what more may be forthcoming when the rest of the papyri have been made out and edited.

So far, the information in regard to subjects with which we are specially concerned is not extensive. There are various letters about sales of land and division of property; not much about building work. There is one from two builders addressed to two municipal officials of Oxyrhynchus, asking for a payment on account for materials for the repairs of the Baths of Hadrian, followed by another from joiners who had been engaged in executing "Kasiotic woodwork" in a new street, in reference to which the editors state that Κάσιον, near Pelusium, gave its name to a certain style of woodwork which was first made there. The letter unfortunately gives us no hint as to the nature or style of Kasiotic woodwork. An agreement (A.D. 55), for the sale of a house in Oxyrhynchus, is interesting from the way in which the purchaser, Tryphon son of Dionysius, is identified by a personal description, as in a passport, and the property by the enumeration of the bounding streets. There are one or two papers in connexion with one Flavius Apion, who seems to have been a person of importance—an undertaking of a mason to transport two hundred blocks of stone to Apion's estate for a cistern, and an acknowledgement given to the heirs of Apion by some one who seems to have been a farm tenant, of the provision for him by the landlord of a new axle for his water-wheel, which was to last seven years; "and the old one has been given to the porter." One wonders to what use the porter put the old axle.

Perhaps the most delightful thing in the volume is a letter from a boy to his father complaining that the latter would not take him (the boy) to Alexandria when he had occasion to go there, and threatening that "I won't write a letter or speak to you or say good-bye . . . . that is what will happen if you don't take me. Mother said to Archelaus, 'It quite upsets him to be left behind.'" This is a letter of the second or third century. It is evident that boys have not altered much in sixteen centuries or so.

TRADE CATALOGUES.

MR. W. DUNCAN TUCKER (Tottenham) sends us his illustrated catalogue of English-made joinery, mouldings, sash-bars and horticultural prepared timber. This latter department includes sections of purlins, rafters, &c., specially prepared for greenhouse and hothouse work. The catalogue also includes a great number of sections of architrave and panel mouldings, cornices, handrails, and electric light mouldings, with drawings of framed doors kept in stock or ready to put together.——The Carbotron Heating Co. (Derby) send an illustrated catalogue of their Carbotron portable stoves, for their patent fuel "Carbotron," which is defined as "a chemical compound which gives out neither smoke, smell, nor fumes, and burns with little draught; whatever gases are generated are absorbed or neutralised by passing through the steam in the basin on the top of the stoves." This appears to promise a stove that will not require any connexion with a flue. We have not seen it in operation, and can therefore only give the statement of the makers. It seems to be worth attention.

Correspondence.

***To the Editor of* THE BUILDER.**

NEWARK PRIORY.

DEAR SIR,—On visiting the ruins of Newark Priory, near Weybridge, last week, I came upon what I consider is an object of some antiquarian interest, and therefore venture to write you on the subject. The ruins are approached from the main road from Pirford, and it is necessary to cross two meadows to gain access to them. Near the gate to the second meadow is a rough bridge over the ditch, and on one side, forming part of the bridge, is what appeared at first sight to be a piece of rough stone, but, on closer examination, turned out to be the lid of a stone coffin or sarcophagus, with an incised Latin cross on it. I had not much time to examine it closely, but I think that possibly the coffin lid may be in marble. It is about 7 ft. long and 2 ft 6 in. wide, and has probably been in this position for many years, and has been covered with earth, but, owing to the recent very dry summer, the stone has become exposed. The ruins are in the parish of Send-with-Ripley, Surrey, and stand on a spot formerly called "Aldebury." The Priory was also called Newstead, or "De Novo Loco," and was founded by Ruald de Calva in the reign of Richard I. for the Canons of the Augustinian

Order. The south wing of the transept and three bays of the choir, all in the Early English style, remain, and a portion of the nave. The south gable of the transept seems likely to fall, and would be a good object for the consideration of the Society for the Preservation of Ancient Buildings.

I hope that the stone may eventually find a more suitable resting-place than it now enjoys.

W. HILTON NASH.

"A SANITARY ANACHRONISM."

SIR,—With reference to the letter from Mr. Norman Wight, under the above heading, in your issue of the 3rd inst., I think, if he will look again at the picture entitled "Making a Marriage in the Olden Time," in No. 2 of *Harmsworth's Magazine*, he will see that the pipe on the roof is intended to be a rain-water pipe and not a soil-vent pipe. In old houses, such as the one given in the illustration (which I enclose), I have often seen rain-water pipes fixed in this way to conduct the water from a centre gutter or flat through an adjoining roof to the nearest outlet or rain-water head instead of having a pipe brought down the centre of the house, and in some cases the water has been brought through the roof by means of a trough-gutter, the open end of which has terminated at the tiles and its contents allowed to run down them to the eaves gutter beneath.

In the picture one of the old-fashioned lead rain-water heads is shown, and into which the rain-water pipe appears to discharge, the down pipe of which is probably built in the wall or hidden by the creeper. ERNEST MITCHELL.

*** As shown in the picture the pipe could not act as a rain-water pipe unless it is supposed to come *through* the roof from some gutter on a higher level behind, of which however there is no indication in the engraving. Perhaps the painter of the original picture (Mr. A. T. Vernon) can explain.—ED.

The Student's Column.

SOUND, LIGHT, AND HEAT.—XIII.

SOUND: REFLECTION.

WE now approach a very important section of our subject, having special reference to the reflection of sound. It is this which has chiefly attracted the attention of architects, as a prime acoustic phenomenon in buildings. The most useful work printed in England relating to the matter is the little treatise by Professor T. Roger Smith,* which is excellent, so far as it goes. Then we have a good *résumé* of what is known concerning acoustics of buildings, by Mr. H. W. Burrows in a paper read before the Institute,† and memoirs by other authors, of more or less value. Atkinson deals with reflection, echoes, and resonances in his usual masterly style in "Ganot's Physics"—so that, all round, there is no lack of information on this aspect of sound.

It is well known from experiments carried out on several occasions, that so long as sound-waves are not obstructed in their motion, they are propagated in the form of concentric spheres; but, says Atkinson, when they meet with an obstacle, they follow the general law of elastic bodies; that is, they return upon themselves, forming new concentric waves, which seem to emanate from a second centre on the other side of the obstacle. This phenomenon constitutes the reflection of sound, which is subject to the two following laws:—

(*a*) The angle of reflection is equal to the angle of incidence.

(*b*) The incident sonorous ray and the reflected ray are in the same plane perpendicular to the reflecting surface.

In general, the laws of the reflection of sound are the same as those for light and radiant heat, which will be more particularly referred to later on in this series. They may be demonstrated by similar experiments. Sounds are also, to a limited extent, subject to deflection in the sense that certain of the rays, having been cut off by some obstacle, others passing beyond the obstacle tend to spread more widely. Suppose the obstacle to be a wall, a person standing behind and immediately underneath it would not catch as much of the sound as a person standing behind but some yards away from the wall. The former individual would be described as being within the sound-shadow. A great deal depends, however, as to whether the sound emitted has one direction impressed upon it or whether it is travelling radially.

Professor Roger Smith, referring to the phenomena of reflection, remarks that when a ray of light falls upon any polished body it is reflected very little diminished in amount or altered in quality. In other cases, however, the light is considered to be partially absorbed, and the remainder is given off by different bodies in different degrees, each throwing off such rays of light only as indicate its own colour and absorbing the others, and every object upon which the light shines thus in turn irradiates light. To a limited extent the same thing occurs with sound. It is also reflected by some bodies and irradiated in the form of sympathetic vibrations by others, and it requires a certain hardness of surface to do either. Whatever the essential difference between those surfaces which do and those which do not reflect light may be, the distinction between bodies that merely reflect sound, and those that, if they reflect it partially, also reinforce it by sympathetic vibration, is that the latter are highly vibratory and the former are not.

Although the angle of reflection is equal to the angle of incidence, that is only true within certain limits. Mr. Scott Russell showed,* with reference to waves of water, that when they strike a plane surface at a more acute angle than 45 degrees, they are not perfectly, and when at one more acute than 30 degrees not at all perceptibly reflected, but appear to travel along the bank or other surface against which they had struck. Sound-waves act in a similar manner, hence we have the phenomenon of conduction. Again, Herschel notes that a sound might be expected to be conveyed with less diminution along a wall than in the open air, the trough or angle between the wall and the ground forming, in fact, two sides of a square pipe.

From the foregoing, the student will have more clearly perceived the necessity for special construction in wainscotting as outlined in the last two articles of this series. But there is this further point to be considered, namely, the condition of the surface of the wall, for as we know, it requires a certain hardness of surface either for successful reflection or reinforcement. As to how the surface is to be treated depends in a great measure on the size and shape of the hall or room; in some cases it is absolutely necessary to weaken the sound to compete with reverberation, whilst in others it is desirable that the speaker's voice shall be assisted artificially, as previously noticed in our observations on resonance.

Before alluding to certain materials that have been employed to bring about either the one or other of these results, let us glance for a moment at the origin of echoes. Atkinson puts the matter very tersely (p. 218). He observes that an echo is the repetition of a sound in the air, caused by its reflection from some obstacle. A very sharp, quick sound can produce an echo when the reflecting surface is 55 ft. distant; but for articulate sounds at least double that distance is necessary, for it may be easily shown that no one can pronounce or hear distinctly more than five syllables in a second. Now, as the velocity of sound at ordinary temperatures may be taken at 1,125 ft. per second, in a fifth of that time sound would travel 225 ft. If the reflecting surface is 112·5 ft. distant, in going and returning sound would travel through 225 ft. The time which elapses between the articulated and the reflected sound would therefore be a fifth of a second, the two sounds would not interfere, and the reflected sound would be distinctly heard. A person speaking with a loud voice in front of a reflector at a distance of 112·5 ft. can only distinguish the last reflected syllable; such an echo is said to be monosyllabic. If the reflector were at a distance of two or three times 112·5 ft., the echo would be dissyllabic, trisyllabic, &c.

In the first few decades of the present century it was generally understood that a parabolic form of the walls and ceiling was suitable for throwing off sound, rendering it more distinctly heard. A moment's consideration suffices to condemn that method, however, if we only note to what uses the parabolic reflector is put to in more recent times. Take, for instance, an employment already noted, in connexion with the photophone. There, the sensitive selenium cell is placed in the centre of the paraboloidal receiver in order that the latter shall, on collecting the rays of the sonoriferous beam, project them on to one point to get the greatest accumulative effect. Now, if instead of a small reflector a very large one be constructed, and a speaker be placed in the same relative position as the selenium cell in the form of photophone mentioned, it will be apparent that the reverse must happen—namely, that the exciter is enabled to partially throw the sound-waves, so to speak, against the reflector, which, in its turn, throws them off in definite directions. This leads to great augmentation of sound, but the speaker must, to get the loudest effect, stand in a definite position, and as the sound is to be thrown out he ought to stand with his back to the audience, provided only the part included in the stage or platform is in the reflector. If the speaker faces the audience he himself gives the prime direction to the sound, which is not, of course, backwards, but outwards and away from the reflector. It follows, therefore, that although the latter can get but very little of the sound to deal with, and most of that is by reflection from other surfaces in front of it, in a large hall that would only tend to increase echo. At the same time there are many instances of such reflectors having been employed.

The problem is an interesting one, and we may go further into it. The practical experiences of the Rev. John Blackburn have frequently been cited in this connexion. In the year 1829 that gentleman wrote* his experiences with reference to his church at Attercliffe, near Sheffield. The church had been newly built, the area of the interior was a rectangular parallelogram, 95 ft. by 72 ft., with an eliiptical recess at the east end, 10 ft. deep and 32 ft. in width; the roof was vaulted and groined, and the highest point of the ceiling of the nave about 56 ft. from the floor. It is mentioned that there were galleries at the sides and west end. The resonance in the church was found to be very powerful, but the sound was so confused that the speaker could not make himself understood. Naturally, the first thing to suggest itself to remedy matters was to change the position of the pulpit. After experimenting with this, but little improvement resulted, so an ordinary flat-sounding board was brought into requisition. This had the effect of discharging most of the sound to a position not wanted, namely, the front seats. He then had recourse to a parabolic reflector, and remarks that the desired object was to convey a distinct sound to remote parts of the church. Under the impression that this might be attained by intercepting so much of the sound as escaped behind and echoed in this part of the vaulted roof, as also by giving it a right direction, and conceiving that a parabolic figure might be so applied as to answer these ends, he made the trial, which proved highly successful. After the reflector had been fixed, people in the end galleries could hear even better than those near the pulpit.

The success attending the introduction of this parabolic reflector was such as to induce several other clergymen to utilise the same method, and many other equally good results followed. Then came the reaction, which has led us to remark the unsuitability of this form of reflector. As Professor Roger Smith observes, when the reflector came to be more extensively tried, it was far from being so universally liked as its success at first seemed to render probable. Indeed, judging from the circumstance that that at Attercliffe was subsequently pulled down, it may be doubted whether even that really proved an unqualified success. The great objections to the use of the parabolic reflector beyond those already mentioned were that the speaker heard the echo of his own voice dinned into his ears in a most bewildering manner, whilst he was also liable to be molested by hearing the little sounds produced among the audience down to the whispers of the occupants of the furthest part of the church, collected and reinforced until the slightest of them were audible. This proved an intolerable nuisance, and the parabolic reflector was placed under a cloud.

The same phenomena witnessed by the selenium cell, only in the above case practised on the preacher instead, are recalled by these experiences. It appears that the reflector is more useful in a long narrow building than in a wide one, though that must, of course, in some measure depend on the width of the mouth of the reflector. The last-mentioned author, in summing up the virtues and defects of this method of augmenting sound, remarks that though the general results seem to show that whilst a powerful means of throwing forward the voice in one direction is unques-

* "Acoustics in Relation to Architecture and Building: the Laws of Sound as applied to the Arrangement of Buildings." New Edition. 1895.

† R.I.B.A. *Journal*, vol. ii., 3rd ser., 1895, pp. 355 *et sqq*

* "Report on Waves." British Association Report for 1844, p. 54.

* Transactions Society of Arts, vol. xlviii. (1830-31.)

tionably within our reach wherever these reflectors can be applied, the number of instances in which they can be of real use must, of necessity, be very limited. A parabolic reflector should never be introduced as part of the structure of a building, but should be moveable.

If this form of reflector has not proved itself to be uniformly successful in propagating sound, it has been found useful under certain circumstances in preventing the transmission of sound, as recorded many years ago in the columns of this journal.* The officials of a prison in the United States found that prisoners could communicate with each other by means of the air-flues belonging to the ventilating apparatus. There were two such flues in each cell, one for the inlet and the other the outlet. Two enlargements were made in these flues 10 ft. apart, and in each of them was fixed a reflecting surface in the form of a paraboloid made of earthenware—the result was highly successful, as sound was effectually prevented from passing.

OBITUARY.

MR. H. J. WHEATLEY.—We regret to record that Mr. Wheatley, who was well known to the London building trade as the Secretary to the Builders' Clerks' Benevolent Institution, has died from the result of having been accidentally knocked down by a cyclist at Stoke Newington Green on the 10th inst. He was found to have sustained a fracture of the skull and concussion of the brain, and died two days after the accident. He had been untiring in his efforts, for the twenty years that he had acted as Secretary, to promote the interests of the Institution with which he was connected, and, as we are told in a letter from their Acting Secretary, "the Committee feel that they have lost not only a very efficient officer but a good friend."

GENERAL BUILDING NEWS.

SCHOOL BUILDINGS, MOTHERWELL, N.B.—The buildings recently erected by the Dalziel School Board, at Motherwell, near Glasgow, and which are intended as a school for secondary education and technical purposes, were recently opened by Mr. R. B. Haldane, Q.C., M.P. The building is situated at the junction of Airbles and Glencairn-streets, and consists of two storeys, but advantage is taken of the natural fall of the ground to the back, where an additional basement floor is obtained. On this floor are arranged the several workshops for engineers, joiners, and plumbers, besides a physical and a metallurgical laboratory. From the basement there is a stair leading to the upper floors, so that access to the workshops can easily be obtained from the class-rooms. This section of the school will, in the meantime, be used for elementary classes. The public entrance to the school is from Airbles-street, where there is a circular porch resting on Doric columns. This leads through a wide passage to the examination hall, which is placed in the centre of the building, and capable of seating 300. This hall is only one storey in height, and is lighted from the roof. A wide and well-lighted corridor runs all round the central hall, so that the work of the clsss-rooms is not disturbed when the hall is in use. There are seven class-rooms on the ground floor for the secondary department of the school. The cookery kitchen, washing-room, and laundry are also placed on the floor, apart from the class-rooms. In connexion with this section there is a demonstration hall, which is so planned that it can be used either for cookery or laundry work. The girls enter from Glencairn-street and the boys from the south side, and the cloak-rooms and and lavatories are placed near the entrances. The upper floor is divided into a science section and an art section, separated from each other by corridors. The science section has a large fitted up laboratory for forty students, with a balance-room and a preparation-room attached. There are six special fume-closets, and the fumes from the working benches are extracted by means of motor fans placed in the ceiling. In connexion with this section there is a lecture hall, capable of seating 200 students. This is fitted up with lecture-table and other apparatus for the purposes of science teaching. There is also a class-room for fifty students. The rooms devoted to art are, for lighting purposes, planned with a northern aspect, and consist of rooms for mechanical drawing, elementary drawing, advanced drawing, painting, and modelling, also a room for the art master, all arranged *en suite*. There are two rooms for music, well isolated from the other class-rooms. The rooms are finished in the plainest manner possible; no plaster cornices are used, and the iron beams are left exposed. The only places where any effect has been asked for are in the corridors and staircases. The exterior has elevations to Airbles and Glencairn streets. The lecture hall is given the prominence to Airbles-street, and is emphasised in the composition by a range of Ionic columns, flanked by plain wall surfaces. The contractors were :—Mason, Robert Park, Motherwell; joiner, Wm. Chambers & Co., Motherwell; slater, John Bertram, Strathaven; plumber, James Parker, Motherwell; plasterer, Hugh M'Lean, Motherwell; tile layers, Staffordshire Tile Company, Glasgow; heating, Jas. Cormack & Sons, Glasgow; glazing, W. Meikle & Sons, Glasgow; painting, Alexander Kemp, Motherwell. The measurers were Messrs. Duff & Henderson, Glasgow. Mr. James Dempster, Motherwell, acted as clerk of works. The architect was Mr. Alexander Cullen.

SEA-BATHING STATION, ABERDEEN.—The new wing, containing twelve plunge baths, sitz, and Russian baths, has now been finished. The walls are of Ruabon compressed bricks, and the baths are of the most modern type. The total cost of the station has been 10,000*l*. Mr. John Rust, Aberdeen, is architect.

CONGREGATIONAL CHURCH, MEERSBROOK PARK, SHEFFIELD.—Foundation stones of the church being erected at Meersbrook Park, Heeley, Sheffield, were laid on the 13th inst. The site is at the junction of Chesterfield and Beeton roads, adjoining the old building, which will be used as a school. The scheme provides for the removal of the existing iron church, and for the erection in its place of a permanent school with class-rooms. The new church will provide accommodation for 500 persons, with choir seats for thirty in a chancel recess. A gallery, capable of containing 200 more, may be added if required. There are vestries, with lavatories in the rear. The lecture-room adjoining the iron church will accommodate fifty or sixty persons. The church is being built of red brick, with Matlock stone dressings. A chief feature in the design will be two turrets, for ventilating purposes, flanking the entrance. The contract price is 3,100*l*. Messrs. Hemsoll & Paterson, of Norfolk-row, Sheffield, are the architects.

GRAMMAR SCHOOL, SHEPTON MALLET.—On the 14th inst. the foundation stone of the new grammar school buildings, Shepton Mallet, was laid. The edifice will have accommodation for 60 boys, will contain the school-room, 45 ft. by 21 ft.; class-room, 25 ft. by 16 ft.; hat and coat room with lavatory, 16 ft. 6 in. by 13 ft. 6 in., with the master's residence attached, containing study, dining-room, and pantry, with kitchen and necessary offices on ground floor, and four bedrooms and bath-room on second floor. The whole building occupies an area 83 ft. in length, and 54 ft. in depth, and is built with bastard freestone, with Bath freestone dressing on the external face. There is also a workshop, latrines, and cycle house detached at rear, with a frontage of 50 ft., and built with the same material. The cost is estimated at 2,282*l*. The builder is Mr. S. Dodimead, of Shepton; the County Surveyor, Mr. Willcox, is the architect.

SCHOOL OF ART, POKESDOWN, HANTS.—On the 14th inst. a memorial stone was laid at the Science, Art, and Technical School buildings now being erected in Christchurch-road, Pokesdown. The ground floor will contain a public entrance hall with separate side entrance for pupils, and a large hall capable of seating 400 to 500 people. On the upper floors will be a chemical laboratory, and rooms for the art students. The materials being used are red Bridgwater bricks relieved by blue Staffordshire bricks and Bath stone. The builder is Mr. T. Head, and the architect Mr. James Morley.

CONGREGATIONAL CHURCH AND SCHOOLS, MORPETH.—A memorial stone was laid on the 22nd inst. in these buildings, which, in addition to the church, school, and infant class-room, has a ladies' parlour, and rooms for a caretaker. The cost of the whole, land included, is estimated at 2,700*l*. Mr. J. W. Taylor, of Newcastle-on-Tyne, is the architect.

BOARD SCHOOLS, SMETHWICK.—On the 16th inst. a new girls' school and pupil teachers' centre, erected by the Smethwick School Board in Crockett's-lane, were opened. The builder was Mr. J. Harley, and the architect, Mr. F. J. Gill.

NEW SCHOOLS, KESWICK.—The new High School at Keswick was opened on the 16th inst. The cost of the buildings was about 6,000*l*. The contractor was Mr. Isaac Hodgson, and the architects were Messrs. Austin & Paley, of Lancaster.

PARISH CHURCH, BELLAHOUSTON.—New transepts and a chancel were opened in this church on the 18th inst. The architect for the additions was Mr. W. F. M'Gibbon, of Glasgow.

CHAPEL, RHYDDINGS.—The memorial stone of a Calvinistic Methodist chapel at Rhyddings has just been laid. The new building, when completed, will seat 700 people. The contract is being carried out by Messrs. J. & F. Weaver, Manselton, from the designs of Mr. P. J. Thomas, architect, Bridgend.

POLICE OFFICE, PAIGNTON, DEVON.—The police buildings now being erected in Paignton are nearly finished, and will be occupied in a week or two. The building faces Palace-avenue, on which it has a frontage of over 70 ft., with an additional frontage on a side road of about 100 ft. They consist of sergeants', single and married constables', and public quarters, sessions room, cells, &c. The heating is by means of a Kennell improved superheated boiler. The contract is for about 3,500*l*. Messrs. Dart & Pollard are the contractors, and Mr. E. H. Harbottle, of Exeter, the architect.

CHURCH, SHOTTON, NORTH WALES.—On the 14th inst. the foundation-stone of a church at Shotton was laid by Mrs. Gladstone. The first part of the edifice to be built will consist of the nave, south aisle, chancel, and chapel (the north aisle and tower being left for future extension). Seating accommodation will be provided for 570, and the cost, including the site, will amount to 5,700*l*. It is designed in the Early Decorated style, from plans prepared by Messrs. Douglas & Minshull, of Chester.

WORKHOUSE HOSPITAL, MANSFIELD.—On the 15th inst. a hospital erected in connexion with the workhouse at Mansfield was opened. It is a two-story building to accommodate sixty-eight female patients. There is already an older block of infirmary buildings, erected in 1883, which accommodates about 100 patients, but the new premises have been built to meet increased requirements owing to the growth of the population in the Poor Law district. An adjoining block contains maternity wards and accommodation for the medical and nursing staffs. The new building will be known as the Victoria Hospital. The estimated cost of the whole is 12,000*l*. The contractors were Messrs. Blake & Beeley, of Mansfield, and Mr. D. Ireson was clerk of the works. The architect was Mr. R. F. Vallance, of Mansfield.

CONGREGATIONAL CHURCH, CROSBY.—This new church building was dedicated on the 15th inst. It has been constructed of Runcorn stone, and is early Gothic in style, with a wide nave. There are two transepts, a chancel with choir stalls on each side, and also vestries for the pastor and choir. The principal entrance is by a large porch approaching from Eshe-road, four entrances in all being provided. All the joinery work has been done with pitchpine, and the seats are of the same material. The church is lighted with electricity, and heated by hot water pipes. A two-manual organ, supplied by Messrs. Norman & Beard, of Norwich, has been fixed on the west side of the chancel at a cost of 630*l*. The builders were Messrs. Hughes & Stirling, of Bootle, and the architects Messrs. Douglas & Fordham, of Chester.

ADDITIONS TO SCHOOLS, PURLEY, SURREY.—An addition recently made to the Warehousemen, Clerks', and Drapers' Schools, at Purley, was inaugurated on Saturday, the 17th inst. It comprises a lofty central hall, capable of holding 400 people, and having on either side an extensive range of class-rooms, while underneath the floor of the building, which is reached by an ample staircase, is a large playground. The structure is of red brick and Victoria stone. The cost was upwards of 9,000*l*. Messrs. J. Kingwell Cole and Kenneth Wood were the architects.

ACADEMY, KILMARNOCK.—The new Kilmarnock Academy buildings, though not quite finished, were recently opened. The building has been treated in the Queen Anne style. The central hall is 62 ft. by 26 ft., and has boys' and girls' staircases adjoining, with galleries communicating with the various class-rooms on the different floors. Altogether there is on the ground and second floors accommodation for 868 scholars. On the third floor there is a cookery class-room, chemical laboratory, &c. There are twenty-two class-rooms in all. Among other accessories being provided are a swimming-bath, a workshop, and gymnasium. The architect is Mr. R. S. Ingram, and the builder Mr. A. Calderwood.

CHURCH, ABERCYNON, WALES.—The new church of St. Donat's at Abercynon, near Llanwonno, has recently been opened by the Bishop of Llandaff. The building affords accommodation for 500 persons, and comprises a chancel, nave, south aisle, and western gallery. The latter is supported by a brick arcade. The church is lined throughout internally with red Cattybrook bricks. The open timber roof is of pitch-pine, not stained nor varnished. The external dressings are of the same bricks, with the exception of the east and west windows and buttress weatherings, which are of Doulting stone. Owing to the building site being on the side of a hill, there is a considerable space under the nave floor, which will ultimately be utilised for the purpose of a parish-room. The cost was about 3,000*l*. The architect is Mr. G. E. Halliday, Diocesan Surveyor, and the contractor Mr. Games, of Abercynon.

SANITARY AND ENGINEERING NEWS.

BRIDGE, LLANGADOCK.—It is proposed to erect a bridge over the Sawdde river near Llangadock village. It will be made of steel, of three spans, 45 ft. each, and 12 ft. wide, and has been designed by Mr. Morgan Davies, Swansea.

ELECTRIC LIGHTING, HANLEY.—A Local Government Board inquiry was held at Hanley, on the 14th inst., with reference to an application by the Town Council for sanction to borrow a further sum of 4,000*l*. for electric lighting purposes. The Town Clerk explained that the annual rateable value of the borough was 197,912*l*., and the balance of outstanding loans was 216,557*l*. On February 6, 1893, the Corporation obtained sanction to borrow 21,000*l*. for electric lighting, repayable in twenty-five years. On June 14, 1894, they borrowed a further sum of 1,100*l*., repayable in ten years; on May 29, 1895, 5,000*l*., on November 28, 19,000*l*., and on July 27, 1897, 14,800*l*., repayable in twenty-five years. The present loan being part of the general scheme, it was desirable that its repay-

* The *Builder*, 1847, p. 618.

ment should be extended over twenty-five years also. They had at present 363 private customers, and these were rapidly increasing. Mr. Cowell, electrical engineer, stated that the private lamps were equal to 25,750 lamps of 8-candle power. They were supplied from four feeders, and it was wanted now to put down a new high-tension feeder to supplement these. Owing to the great demand in the evening the tension dropped to 94 volts, whereas the minimum allowed was 97. It was also explained that the Council wished to take advantage of the ground being opened for telephone purposes to lay down some new low-pressure distributing mains. The present application was to meet the estimated requirements during the next twelve months.

WATER SUPPLY, CHESTERFIELD.—On the 16th inst. a Local Government Board inquiry was held at Chesterfield, with respect to an application by the Rural District Council for sanction to borrow money for the purposes of the scheme for the extension of the northern water-supply system. The inquiry was also relative to an application by the Dronfield Urban District Council for sanction to borrow 5,189*l.* Mr. E. M. Eaton, Consulting Engineer, in explaining the scheme, said the authority had already control of 2,000 acres of gathering ground for the purposes of the northern water-supply, but they were very deficient in reservoir storage. The Barbrook watershed was the most prolific gathering ground. The Barbrook drainage area, down to the lower of the two existing reservoirs, was 1,319 acres, of which the scheme now suggested was intended to deal with 1,038 acres. The available rainfall for the drainage area he estimated to be a little over 15 in. The total yield of the 1,038 acres would amount to 991,000 gallons a day, but that would involve a very much larger storage than they needed, or had ground to construct, so that they had taken it upon the probable requirements of the district for a reasonable period in advance, and the capacity of the intended reservoir was made a little over 71,000,000 gallons. The existing works, with the contemplated additions, would give a supply for the next twenty-five or thirty years. In addition to the 71,000,000 of storage, they had a service reservoir at High-lane, Mosborough. The water from the Barbrook area was very peaty, and they had had a difficulty with regard to lead poisoning. It was proposed to neutralise the carbonic acid in the water by a layer of broken chalk in the reservoir, which would prevent the action on the lead pipes which led to lead poisoning.

ELECTRIC LIGHTING AND STREET WORKS, BRIGHTON.—At the Royal Pavilion, Brighton, on the 14th inst., a Local Government Board inquiry was held into the proposal of the Town Council to borrow 56,300*l.* for purposes of electric lighting and 1,750*l.* for street improvement. The Town Clerk explained that the amount proposed to be borrowed for electric lighting included the probable expenditure for two years. The loan for street improvement was required for the purpose of improving the south side of Madeira-road. The necessity for this had arisen through the washing away of the Chain Pier, which left a gap in the frontage. It was proposed to extend the retaining wall in front of the Aquarium eastward.

SEWAGE WORKS, CHADDERTON. — The new sewage purification works at Chadderton, constructed from the designs of Mr. James Diggle, C.E., Heywood, were formally opened on the 17th inst. The site, situated at Slacks Valley, contains 15 acres, and the total cost of the disposal works and the sewage scheme has been 80,000*l.*, of which 50,000*l.* has been expended on sewerage.

BRIDGE, GILSLAND, CUMBERLAND.—On the 20th inst. a number of members of the Cumberland County Council inspected the stone bridge over the Irthing at Gilsland, which has recently been completed. It is built on the skew principle, and has cost about 1,400*l.*, including road diversions. The builder was Mr. T. Telfer Laughton, and the engineer Mr. G. J. Bell, County Surveyor.

STAINED GLASS AND DECORATION.

WINDOWS, ASTBURY CHURCH.—A large five-light window and two smaller ones in the chancel of Astbury Memorial Church, Handsworth, near Birmingham, have recently been filled with stained glass. The work was designed by Mr. T. W. Camm, and executed at his studio, Smethwick, Birmingham.

ST. PAUL'S, GOSWELL-ROAD, E.C.—This church, built by the late Mr. Ewan Christian, is now undergoing thorough internal cleaning, and decoration in gold and colour, with a large painting in the east end of the church representing "The Lord's Supper." In fact the whole building will be painted from top to bottom. The work is being carried out by Messrs. Percy Bacon & Bros., of Newman-street, W., under the direction of the architect, Mr. Romaine Walker.

MEMORIAL WINDOW, MALTON.—A memorial window placed in St. Michael's Church, Malton, has recently been dedicated. It represents "The Sermon on the Mount," and was executed by Messrs. Clayton & Bell, of London.

FOREIGN.

FRANCE.—The iron foot-bridge designed by MM. Résal and Alby, to serve for the construction of the Alexandre III. bridge, has been placed in position. ——The sketch for the monument to Gounod to be placed in the Parc Monceau is completed. Three figures representing Mirelle, Marguerite, and Juliet, surround the pedestal, on which is the bust of the composer, and against which is shown a piano with a figure of the Genius of Music playing on it; a not very happy thought.——The house of the late painter, Gustave Moreau, is shortly to be opened to the public as a museum.——At Jargeau, on Sunday last, a monument to Jeanne Darc was inaugurated, which was the last work of the late sculptor Alfred Lanson.——M. Osiris is about to completely restore the Château of Malmaison, which he is going to present to the State, and which will form a very curious museum of things connected with the Consulate and the Empire.——The jury in the competition for the restoration of the Hôtel de Ville of Besançon have selected M. Lambert, of Paris, as architect for the work.——M. Ferdinand Deconde, architect, of Wassy, has been commissioned to undertake the restoration of the façade of the Church of Notre Dame in that town, as it is presumed to have existed, according to various documents and sketches, before the fire of 1591.——M. Henri Dupray is at work on two large compositions for the Mairie at Vincennes, commissioned by the Conseil-Général, and intended for the grand staircase. One represents the defence of Vincennes in 1812 by the Ecole Polytechnique; and the other, the army of Paris quitting Vincennes to cross the Marne, in 1870, the day of the battle of Champigny.——It is probable that the fine monumental group by M. Dalou, "The Triumph of the Republic," of which we gave an illustration some years ago (taken from the full-size model) will be inaugurated on July 14 next year. It is to stand in the centre of the basin in the Place de la Nation.——The death is announced, at the early age of forty-eight, of M. Jean Alexandre Pézieux, the sculptor. He was a pupil of Jouffroy, Fabich, and M. Tony Noël, and obtained a medal of the third class and travelling scholarship in 1882, and a medal of the first class in 1894. Among his principal works were "Non Omnes Morimur," a marble group belonging to the Paris Municipality; "O Jeunesse," a marble statue in the Musée Galliera, and a figure entitled "Songe d'Avenir," bought by the Paris Municipality from the Salon of 1896, which the artist was engaged in executing in marble at the time of his death.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Mr. W. L. Le Maitre, Civil Engineer, of Westminster, has removed his local office at Bristol to Carlton Chambers, Baldwin-street, Bristol.

ANTIOXIDE.—Messrs. Peters, Bartsch, & Co. have sent us a sample of their antioxide. It is a transparent varnish which, when applied to iron, steel, or other metal, protects it from oxidation and corrosion. It is also intended for the protection of painted surfaces.

CENTRAL SCHOOL OF ARTS AND CRAFTS.—We have received the prospectus and time table of this school, under the control of the Technical Education Board of the London County Council, which includes classes for architectural design under Mr. Ricardo, in which the subject is treated from the point of view that architecture should respond to the facts of modern life. Shaded drawing, for architects, conducted by Mr. Chadwick; stone working for architects, by Mr. R. H. Hook; lead work for architects and plumbers by Mr. Troup; stained glass work, by Mr. Whall; modelling, by Mr. E. Roscoe Mullins, &c.

BATTERSEA POLYTECHNIC.—This institution has added to its programme classes for instruction in builders' estimates and quantity-taking, under Mr. J. Bartlett. They are divided into elementary and advanced classes. In the elementary class students will receive instruction in taking-off, abstracting, and billing from simple examples. Students joining this class must have passed in technical mensuration and elementary building construction. In the advanced class the method of measurement adopted under each trade will be fully dealt with, and complete examples of taking-off, abstracting, and billing will be given in each trade. Students joining the advanced class must have passed in elementary quantities and advanced building construction. This class will also deal, as far as possible, with more advanced examples, including examples of measurement from building, also adjustment of accounts and formation of prices. These classes will be examined at the end of the session by the Polytechnic, and certificates will be awarded.

COLLAPSE OF A BUILDING, GOVAN, N.B.—Through the collapse of a building in Govan, near Glasgow, on the 19th inst. five men were killed and three injured. A year ago a new building of four flats was erected with frontages to Govan-road, Napier-street, and Main-street. The upper flats were to be used as a model lodging-house, and the street flat was occupied by a firm of grocers. The building is understood to be fireproof, all the floors being laid with concrete. It appears that the work of laying the concrete on the fourth floor was being proceeded with, at about three o'clock, when without any warning, the floor collapsed and fell right through to the ground, crashing through and wrecking the grocer's shop. No cause can as yet be assigned for the accident, as the building appeared to be perfectly sound and substantial.

PUBLIC WORKS, OLD TRAFFORD, MANCHESTER.—On the 15th inst. a Local Government Board inquiry was held at the offices of the Stretford Urban District Council into the application of the Council for sanction to borrow 6,000*l.* for the provision of a Technical Institute and Public Library, and 4,000*l.* for the purchase of land at Pennington-lane for purposes of public walks and pleasure grounds.

THE REGISTRATION OF PLUMBERS' AND DOMESTIC SANITATION.—The Lord Mayor of Manchester presided at a public meeting in Manchester on Monday, at which Dr. Mansel-Howe delivered an address on "The Registration of Plumbers' and Domestic Sanitation." We must, he said, feel that it was upon the efficiency of a system ensuring the qualification of plumbers, and enabling the public to recognise the qualified man, that sanitary plumbing actually depended. The registration of the plumber deserved to come under the recognition and the protection of Parliament. Mr. Lees Knowles, M.P., said that all parties in the House were committed to the principle of the Bill, the main object of which was to afford additional safeguards to the public health by enabling persons employing plumbers to select, when they desired to do so, those who had given evidence of their qualification for plumbers' work. There were opponents to the Bill, but when it was explained that it was not in any way intended to create a monopoly, they withdrew their opposition. The Bill conferred, as it were, a degree upon plumbers, and what they wanted was that this degree of Registered Plumbers should be recognised by the law. The Lancashire County Council, in one of their reports, emphasised the fact that the operative plumber was frequently left to carry out most responsible work by himself. They had many precedents for registration, and he could not help thinking that the subject was one well worthy the consideration of any Government. What, however, was wanted was the support and assistance of the general public opinion. The Government required to be stirred up in the matter, and he suggested that the supporters of the movement ought to make a representation to Parliament and explain what their views were, pointing out that it was to the advantage of the country that the Bill should be passed.

PROPOSED LARGE GRAVING DOCK ON THE TYNE.—The *Newcastle Daily Chronicle* states that a special meeting of the Docks Committee of the River Tyne Commissioners was held on the 19th inst., in Newcastle, when a deputation was received from the Elswick Works consisting of two of the principals of the firm of Sir W. G Armstrong, Whitworth, & Co., Ltd., viz., Sir Andrew Noble, and Col. Watts. The deputation had a most important scheme to lay before the committee, *i.e.*, the urging of the great advisability and indeed the pressing necessity of the Commissioners making a large graving dock on the Tyne that should be capable of accommodating the largest battleships, cruisers, and ocean-going passenger liners. Sir Andrew Noble said he considered that the graving dock should have an entrance of 85 ft. width and be 600 ft. to 700 ft. long, with a depth of at least 28 ft. of water at ordinary spring tides. He thought that if the Commissioners would take up this special work, the Admiralty might be willing to do something to help the scheme, seeing that there was on the north-east coast no place where the largest battleships and cruisers could be docked for the purpose of repairs, &c. In the end, it was agreed that the Docks Committee should hold a special meeting at an early date for the purpose of considering the matter.

STREET IMPROVEMENT WORKS, BATH.—A Local Government Board inquiry was held at Bath on the 14th inst. respecting the Urban Authority's application for sanction to borrow 18,000*l.* in connexion with the London Street improvement scheme.

CAPITAL AND LABOUR.

SETTLEMENT OF THE QUARRIES DISPUTE, ABERDEEN.—We learn that this dispute has at length been settled; all the men were reinstated on Thursday morning, and the suspension of masons is also concluded. About 800 operatives were affected by it. Of these 150 had up to Saturday last left the city for employment elsewhere, assisted by removal grants from the union. On Monday, at a joint meeting of the Committees of the Master Masons' Association and of the Quarry-owners' Association, Mr. Wight, manager for Messrs. Manuelle & Co., stated that his firm was prepared to regulate the pay at Dancing Cairns Quarry with the other quarries in the district. Should the men accept this, both the quarry dispute and the suspension of masons will be at an end. We understand that the acceptance of these terms led to the termination of the dispute.

BUILDING TRADE, STAFFORDSHIRE.—The building trade for the time of the year is exceptionally good, and bricklayers are in request, advertise-

ments for men continually appearing. Joiners are busy, with none out of work. Plasterers are well employed, but they are not so busy as last week. Painters and plumbers are very busy, with no unemployed. In all the brick and tile yards in North Staffordshire great activity exists, the operatives being very busy. At Leek all branches are fairly busy, with a small number on the out of work list. At Stafford stonemasons are also busy. Joiners and bricklayers report a slight decline, with a few out of work.—*Staffordshire Sentinel.*

LEGAL.

ANCIENT LIGHT DISPUTE.

THE case of Harding *v.* The Cleveland House Syndicate, Limited, came before Mr. Justice Channell, sitting as Vacation Judge, on the 21st inst.

Counsel for the plaintiff said that Mr. Justice Phillimore had, as Vacation Judge, granted an *interim* injunction restraining the defendants from building so as to interfere with the plaintiff's ancient lights. He and his learned friend who appeared on the other side had agreed, subject to his Lordship's permission, that the *interim* injunction should be continued over the next motion day, with liberty to the plaintiff to amend the writ by striking out the word "syndicate" from the defendant's title, which was wrong. There would also be liberty to either side to inspect each other's buildings.

His lordship assented to the application.

ANCIENT LIGHT DISPUTE: ALLEGED "RUSHING UP."

THE case of Keeble *v.* Poole came before Mr. Justice Channell, sitting as Vacation Judge, on the 21st inst., on the application of the plaintiff to restrain the defendant, by injunction, from interfering with his ancient lights.

Upon the application of counsel his Lordship directed that the case should stand over, the defendant in the meantime undertaking not to build so as to obstruct or darken the plaintiff's ancient lights as heretofore enjoyed.

Mr. Alexander, Q.C., for the plaintiff, said that the defendant had worked day and night to rush up his building, and he, on behalf of his client, intended to ask for a mandatory injunction.

BUILDING DISPUTE AT ISLINGTON

COUNSEL applied *ex parte* to Mr. Justice Channell, sitting as Vacation Judge, on the 21st inst., for an *interim* injunction over the 28th inst. restraining a Mr. Buckle and Messrs. Morley & Lawrence, Limited, from pulling down or otherwise interfering with the walls or structure of No. 257, Upper-street, Islington. The learned counsel stated that his client demised to Mr. Buckle for a term of years Nos. 257 and 258, Upper-street, and last Thursday he heard from that gentleman (Mr. Buckle) that alterations were being made to No. 257. On the plaintiff sending up to see what the alterations were he found that the shop part of No. 257 was completely gutted, and part of the boundary wall pulled down, the house being thrown into and forming part of the next house, No. 256, in which the plaintiff was not interested. The lease to Mr. Buckle gave him no right to pull down the premises in question.

His lordship granted the application, and gave leave to serve notice of motion for the 28th inst. to continue the injunction.

ACTION BY THE OWNER OF A BUILDING ESTATE.

THE case of Hutchings *v.* the Seaford Urban District Council came before Mr. Justice Channell, sitting as Vacation Judge, on the 21st inst., on the application of the plaintiff, the owner of a building estate at Seaford, to restrain the defendants by injunction from laying a drain across his property, the defendants not having complied with certain provisions of the Public Health Act, 1875.

Mr. Vaughan, who appeared for the plaintiff, urged that the defendants had no right to go on private property other than along a road or something of that sort, except they complied with the conditions of the Public Health Act, viz., (1) by giving reasonable notice and (2) by the defendants' surveyor reporting that the work was necessary. Counsel went on to state that neither of those conditions had been complied with.

In the result his lordship refused the application for an *interim* injunction, but reserved the costs till the trial.

APPLICATION TO RESTRAIN ERECTION OF BUILDINGS.

THE case of Brown *v.* Sheinman & Volk was in the list for hearing before Mr. Justice Channell, sitting as Vacation Judge, on the 21st inst., it being an application by the plaintiff for an injunction to restrain the defendants from erecting buildings so as to interfere with his ancient lights.

When the case was called on, counsel for the plaintiff asked that the motion might be allowed to stand over for a week, in order that his client might be allowed to amend the writ and the notice of motion by adding some more defendants, with leave to serve them to appear on the 28th inst. The present defendants did not offer any objection to the course proposed.

The application was accordingly granted.

APPLICATION TO RESTRAIN ERECTION OF BUILDINGS

THE case of Oppert *v.* Cochrane and others was in the list for hearing before Mr. Justice Channell, sitting as Vacation Judge, on the 21st. inst., on the application of the plaintiff for an injunction to restrain the defendants from the erection of certain buildings, &c.

When the case was called on counsel stated that it had been mutually agreed that the motion should stand over for a week, certain evidence to be filed on or before the 28th inst. His lordship assented to this arrangement.

IMPORTANT ANCIENT LIGHT DISPUTE.

THE case of Coles and Others *v.* the Salters' Company came before Mr. Justice Channell, sitting as Vacation Judge, on the 21st inst.

Mr. Mulligan, Q.C., for the plaintiffs, stated that the action was brought by the plaintiffs to restrain the defendants from building so as to obstruct the plaintiffs' ancient lights. Affidavits had been filed, and the position of matters was this—very eminent architects were not agreed. On the affidavit evidence, and subject to his lordship's sanction, it had been arranged that the motion should stand till the trial, the action to be set down at once without pleadings, but pleadings to be delivered notwithstanding the Long Vacation, with liberty to either party to apply to advance the trial. The learned counsel stated that he should like it to be understood that if the defendants continued to build they would do so at their own risk.

Mr. Alexander, Q.C., for the defendants, consented to this arrangement.

His lordship: That seems a very reasonable arrangement for both parties.

Mr. Alexander: The costs will be dealt with at the trial.

His lordship: Yes. There will be no *interim* injunction or undertaking as to the defendants' building, but, as Mr. Mulligan says, it will be at the defendants' risk.

APPLICATION TO RESTRAIN ERECTION OF A WALL.

THE case of Kitson *v.* Saunderson came before Mr. Justice Channell, sitting as Vacation Judge, on the 21st inst., on the application of the plaintiff to restrain the defendant from erecting a wall so as to obstruct his (plaintiff's) ancient lights.

Upon the case being called on counsel for the plaintiff stated that the case was practically settled, but both parties wished that the motion might be allowed to stand over for a week in order that terms might finally be arranged.

The application was granted.

ALLEGED INFRINGEMENT OF ANCIENT LIGHTS AT SURBITON.

THE case of Philpott *v.* the Surbiton and Long Ditton, &c., Society, Limited, was in the list for hearing before Mr. Justice Channell, sitting as Vacation Judge, on the 21st inst., it being an application by the plaintiff to restrain the defendants from the erection of a building so as to obstruct his ancient lights.

Upon the case being called on, counsel for the plaintiff stated that negotiations were in progress between the parties with regard to a settlement, and by the consent of both sides he asked that the case might be allowed to stand out of the list formally, with liberty to either party to apply to have it reinstated.

His lordship allowed the application

MEETINGS.

SATURDAY, SEPTEMBER 24.

London and Provincial Builders' Foremen's Association.—Monthly Meeting, 7.30 p.m.

British Institute of Certified Carpenters.—Visit to Eton and Windsor.

Institution of Junior Engineers.—Visit to Sir David Salomon's Workshops.

TUESDAY, SEPTEMBER 27.

Sanitary Institute.—Congress at Birmingham. Inaugural Address by Sir Joseph Fayrer, 3 p.m. Opening of Health Exhibition by the Mayor, 8.30 p.m.

WEDNESDAY, SEPTEMBER 28.

Edinburgh Architectural Society.—Honorary President's address.

Sanitary Institute.—Congress at Birmingham. Conferences, &c., 10 to 1 p.m. and 2 to 5 p.m. Reception of the Mayor of Birmingham, 8.30 p.m.

Provident Institution of Builders' Foremen and Clerks of Works.—Quarterly Meeting of Directors. 8 p.m.

THURSDAY, SEPTEMBER 29.

Sanitary Institute.—Congress at Birmingham. Meeting of Sections 10 to 2 p.m. Lecture by Dr. Childs, 8.30 p.m

FRIDAY, SEPTEMBER 30.

Sanitary Institute.—Congress at Birmingham. Meetings of sections, 10 to 2 p.m.; closing general meeting, 5 p.m. Popular lecture by Dr. Hill, 8·30 p.m.

SATURDAY, OCTOBER 1.

British Institute of Certified Carpenters.—Mr. J. Clark on "Graphic Statics applied to Carpentry Structures." 6 p.m.

Sanitary Institute.—Congress at Birmingham: Excursions.

RECENT PATENTS:

ABSTRACTS OF ACCEPTED SPECIFICATIONS.

Open to opposition until October 31.

[1897] 19,969.—VENTILATING APPLIANCES: *J. Leather.*—At or near one end of an opening into the room or space to be ventilated are arranged certain directing plates, and at or near the other end a series of similar plates disposed radially or nearly so to a centre upon which the series moves; the plates may be partly solid, or perforated, and adjusted to cover or close passages between any two of them; they are operated by cords and pulleys, hooks, or otherwise.

22,526.—GLAZING FOR ROOFS, DOMES, FRAMES, WINDOWS, &C.: *J. R. Carlisle (deceased).*—For this invention, which is applicable to curved as well as to flat glass sheets is employed, where a horizontal joint has to be made, a strip of lead, or composition, of an H section or approximately of that section, and sufficiently strong to replace the supporting bar or strip commonly used; in the case of a vertical joint is employed a wooden or metal bar or strip to which is secured another strip of lead, or of composition, above which latter is another strip of T or similar section adapted to hold the edges of the glass on to the flat lead strip, the two strips being screwed or secured to the bar; the T strip or cover piece is preferably of a section that has its greatest thickness in the middle. The novelty lies in the use of strips heavier and stronger than those commonly adopted, the combination of a bed plate with a heavy cover plate abutting against the bed plate centrally, the combination with a vertical or principal joint sufficiently strong to form the roof of a horizontal or lateral joint, whereby a bar or rafter is dispensed with, and the combination with a bed plate, a strengthened cover plate secured thereto rebated to receive the glass and forming the vertical or principal joint, of a horizontal or lateral joint of H section.

22,781.—MACHINE FOR SWEEPING CHIMNEYS: *Annie Messenger.*—The brush is attached to a wire rope carried over a pulley in the top of the chimney, the ends of the wire rope being secured to the ends of two ropes fastened to two drums, or to one drum in such a manner that when the drum or drums rotate one rope is paid out as the other is drawn in. Other pulleys or rollers are placed in such relation to the operating drums that they guide the ropes into the line of pull; a handle rotates the drums, and the frame is shaped to close the stove's whole front.

23,265.—WINDOW CASEMENT FASTENER: *J. Milne.*—A lever arm or stay has a quadrant slot formed slightly eccentric to the centre upon which it revolves when lowered or raised; through the slot passes the fixing-pin which is fixed to the window-frame; when the window is shut the slot is drawn very tightly into its frame by means of the lever; when it is opened the eccentric again forces it out of its frame; when the lever is raised the slot is continued from the end of the eccentric along the lever arm with small side slots; as the window is opened the lever arm slides along the fixing-pin and can be set at any point by a screw thumb-nut, or more securely by depressing it slightly when one of the side slots comes opposite the pin, which allows the pin to enter the side slot, and then screwing the nut. The contrivance is intended for an outwardly-opening casement, but can be adapted to an inwardly-opening casement by attaching the lever arm or stay to the frame and the pin to the casement.

23,771.—IMPROVEMENTS IN WATER-CLOSETS: *M. J. Adams.*—The closets are made with wings which reach back to the wall in order to close the space behind them, and are used with a syphonic outlet, which gives a low normal level and an extra high water level at the time of flushing; when they are used in multiple form, cisterns are placed near the seat level in such a manner that all can be fed by one regulating cistern fitted with a ball valve, the separate cisterns not needing separate ball valves.

[1898] 11,388.—GUARDS OR FENCES FOR CIRCULAR SAWS: *R. W. Tayler.*—In order to provide a guard for saws having different diameters, and used interchangeably in one saw bench, is devised an arrangement of levers with two or more metal plates or shields forming segments of a circle corresponding with the diameter of the largest saw, the levers being so disposed and pivotted to a slide working in a fixed head to which the levers are connected that the shields can be closed to guard saws of various diameters by adjusting the slide which moves in a vertical plane and is secured by means of a set screw; the two levers are pivotted to the slide, forming a cross (×), and their upper ends are connected by links to the head of an arm of a pedestal fixed to the bench-table.

14,544.—CONSTRUCTING CONCRETE FOUNDATIONS FOR WHARVES, DOCKS, EMBANKMENTS, &C.; AND CONSTRUCTING, LOCATING, AND BONDING BLOCKS IN OTHER STRUCTURES: *B. H. Jones.*—The method consists in moulding the blocks with projecting connecting guides, which extend from end to end of each block, and, as regards those of laterally adjacent blocks, being opposite to and adapted to engage with one another, and to hold the blocks in close connexion for being bonded together; and subsequently in forming the blocks with bonding recesses and with joint-stopping recesses, and the bottom or foundation blocks with spreading recesses, and in bonding all together in a solid mass, and stopping the joints with concrete fillings, both with and without metal tie-rods or bars embedded in the filling.

15,808.—WATER SUPPLYING AND CONTROLLING APPARATUS FOR WATER-CLOSET TANKS: *A. Burgin.*—The invention comprises a water-closet tank of ordinary construction having pipe connexion with the bowl, a dumping receptacle for water within the tank and supported by suspension, the valve or cock being adapted, when open, to deliver the water into the receptacle, and valve-operating means so combined with the dumping receptacle that when the latter is empty or less full than to a given predetermined extent, the valve will be open for water delivery, and closed automatically after delivery. A sufficient overbalancing quantity of water swings the lever and closes the valve, and a roller weight runs on the lever

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*Pump Room	Harrogate Corp.	50*l.* 30*l.* and 20*l.*	Jan. 2, '99

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
*Granite Setts	Coventry Corp.	J. E. Swindlehurst, St. Mary's Hall, Coventry	Sept. 27
Five Houses, Hainsworth Wood-road, Keighley		W. H. & A. Sugden, Archts. Cavendish-st. Keighley	do.
Two Cottages, Elgin, N.B.	Mr. Lamb	G. Sutherland, Archt. Elgin	do.
Additions, &c. to Farm Buildings, Alnwick Moor		W. R. Hindmarsh, jun. Archt. Alnwick	do.
Refreshment Arbour, Jephson Gardens	Leamington Corp.	F. G. Cundall, Archt. 41, The Parade, Leamington	do.
Flint Road Metal	Amesbury (Wilts) R.D.C.	J. T. Huxham, Surv. Amesbury	do.
Surveyor's Materials	Pontypool U.D.C.	H. W. Haden, Council Offices	do.
Guernsey Granite, &c.	Romford (Essex) U.D.C.	G. Bailey, Council Offices, Romford	do.
Additions to School House, Wroxall, I. of W.	Newchurch Sch. Bd.	E. J. Harvey, Archt. Ventnor	do.
Quartzite Road Metal, &c.	Sheerness U.D.C.	C. A. Copland, Surv. Council's Offices	do.
*Paving Works	Willesden D.C.	O. C. Robson, Public Offices Dyne-road, Kilburn	do.
Underground Conveniences, Market-place	South Shields T.C.	S. E. Burgess, C.E. Chapter-row	Sept. 28
Making-up Goodier-st. and Others	Sale U.D.C.	A. G. M'Beath, C.E. Council Offices	do.
Dispensary	Portsea Island Union	C. W. Bevis, Archt. Elm Grove-chmbrs. Southsea	do.
Ten Houses, Deadwaters, Folly Hall	Huddersfield Indus. Soc. Ltd.	J. Berry, Archt. 9, Queen-st. Huddersfield	do.
Sewerage Works, Bingham-road	Bingham R.D.C.	R. H. Beaumont, Market-st. Bingham	do.
Embankment Works, near Tir Morfa	Llanelly T.C.	G. Watkeys, C.E. Town Hall	do.
Swimming Bath	Banbury T.C.	N. H. Dawson, C.E. Boro Surv.	do.
Five Cottages, &c. Spring-st. Barnsley		Wade & Turner, Archt. 10, Pitt-st. Barnsley	do.
Additions, &c. to Workhouse, Wooler	Glendale Union	J. Stevenson & Sons, Archt. Berwick-on-Tweed	do.
Retaining Wall, &c. South-street	Durham U.D.C.	W. T. Jones, Archt. 7, North Bailey, Durham	do.
Sewerage Works, Pelaw Grange, Harraton	Chester-le-Street R.D.C.	G. Symon, Surv. Birtley, Chester-le-Street	do.
Railway Line, White House Junction, Preston	L. & Y. Ry. Co.	Engineer, Hunt's Bank, Manchester	do.
Rebuilding Royal Oak Hotel, Cwm, Mon.		Rosser & Roberts, Archt. Victoria-chmbrs. Abercarn	do.
Abutments, Walls, &c. of Bridge, Glanrhyd	Llandovery R.D.C.	M. W. Davies, C.E. 3, Gloucester-place, Swansea	Sept. 29
Extension Electric Light Station	Hull Corp.	A. E. White, City Engr. Town Hall	do.
Road Works, Pearson-st. and Others	Middlesbrough Corp.	F. Baker, C.E. Municipal-buildings	do.
Three Shops and Houses, Cavendish-st. Keighley	Fleece Mills Co. Ltd.	W. & J. B. Bailey, Archt. Bradford	do.
Additions to Workhouse	Salisbury Union	J. Harding & Son, Archt. 58, High-st. Salisbury	do.
Town Hall	Colchester T.C.	H. C. Wanklyn, Council's Offices	do.
Wood Paving, Market-square	Basingstoke T.C.	G. Fitton, Boro. Surv. Town Hall	do.
Destructor House, &c. Clifton-street	Hartlepool Corp.	H. C. Crummack, C.E. Town Hall	do.
Bridge Superstructure, Bedminster	Bristol Corp.	J. M. McCurrich, Engr. Cumberland Basin	do.
*Making-up Roads	Wood Green U.D.C.	C. J. Gunyon, Town Hall, Wood Green, N.	Sept. 30
Alterations to Horse-shoe Inn, Shiregreen	Exors. R. J. Bentley	G. A. Wilson, Archt. Hartshead-chambers, Sheffield	do.
Five Shops and Houses, Northgate-st. Canterbury	Trs. St. John's Hospital	W. J. Jennings, Archt. 4, St. Margaret's-st. Canterbury	do.
Hospital, &c. Dangerfield-lane	Wednesbury Corp.	E. M. Scott, Boro. Engr.	do.
Pier, &c. Auckingill, N.B.		G. Woulfe Brenan, C.E. Oban	do.
Extension of County Offices, Beverley	E. Riding C.C.	B. S. Jacobs, Archt. Bowl-alley-lane, Hull	do.
Tenement, Bank-street	Edinburgh Corp.	Burgh Engineer, 1, Parliament-square, Edinburgh	do.
Street Works, Hilton-street	Wolverhampton Corp.	J. W. Bradley, C.E. Town Hall	Oct. 1
Promenade Extension, West Bank	Widnes Corp.	J. S. Sinclair, C.E. Town Hall	do.
Sewerage Works, New-street, &c.	Birmingham Corp.	J. Price, City Engr. Council House	do.
Four Houses, Crawley	North Walsham Sch. Bd.	W. Buck, Archt. Horsham	do.
Additions to Schools		Bottle & Olley, Archt. 5, Queen-street, Great Yarmouth	do.
Twenty-four Cottages, Meanwood-rd. Leeds		J. E. Preston, Archt. 32, Northbrook-street, Chapel Allerton	do.
Additions to Museum Buildings	Leicester Corp.	E. G. Mawbey, C.E. Town Hall	do.
*Lime	Wigan Corp.	Town Clerk	Oct. 3
Sewering, Paving, &c. Eldon and Nelson-streets	Burton-on-Trent Corp.	G. T. Lynam, Boro. Engr. Town Hall	do.
Impounding Reservoir, Melbury Moor, Devon	Northam U.D.C.	B. Latham, C.E. 13, Victoria-street, S.W.	do.
Addition to Fish Market, St. Michan-street	Dublin Corp.	City Architect, Municipal-bldgs. Cork Hill	do.
Additions to Lunatic Asylum, Richmond, Ireland	Board of Control, Dublin	W. H. Byrne, Archt. 20, Suffolk-street, Dublin	do.
Slag, Whinstone, &c.	Whickham (Durham) U.D.C.	T. Lambert, Town Hall	Oct. 4

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
Engine Shed, &c. Truro	G. W. Ry. Co.	G. K. Mills, Paddington Station, W.	Oct. 4
Four Cottages, Solihull Station, near Birmingham	do.	do.	do.
House, Upland Schools, Bexley Heath	Bexley Sch. Bd.	W. J. Weaving, 199, Broadway, Bexley Heath	do.
Cast-iron Main (9½ miles) Gt. Bentley	Clacton-on-Sea U.D.C.	Taylor, Sons, & Co. Engrs. 27, Gt. George-street, S.W.	do.
Boiler House, &c. Fir Vale Workhouse	Sheffield Union	J. Clark, Archt. 55, Norfolk-street, Sheffield	do.
*Access to Chimney Stacks (Erection of)	Chelsea Guardians	Lansdell & Harrison, 38, Bow-lane, Cheapside, E.C.	do.
*Road Making	Lewisham B. of W.	Surveyor's Dept. Town Hall, Catford, S.E.	do.
Tramcar Shed, &c. Free School-lane	Halifax Corp.	E. R. S. Escott, C.E. Town Hall	Oct. 5
Improvement Works, Gloucester-rd &c.	Littlehampton U.D.C.	H. Howard, Surv. Town Offices	do.
*Drainage Works	Farnham & Hartley Wintney School		do.
Rowley Granite, &c. (500 tons)	Quarry Bank (Staffs.) U.D.C.	A. Womfray, Cradley Heath	Oct. 6
*Lighthouse Dwellings	Trinity House Corp.	C. G. Verity, 31, Golden-square, W.	do.
Schools, Stoughton	Guildford (U.D.) Sch. Bd.	E. L. Lunn, Archt. 36, High-street, Guildford	do
Granite Road Metal and Chips	Bishop Stortford U.D.C	W. Gee, Council Offices, North-street	Oct. 8
Sewerage Works, Farington	Preston (Lancs.) R.D.C	J. Clarke, Union Offices, Preston	do.
School, Stamshaw-road	Portsmouth Sch. Bd.	A. H. Bone, Archt. Cambridge-junc. Portsmouth	Oct. 10
*Eighty-one Cottages	Barking Town U.D.C.	C. J. Dawson, East-street, Barking	Oct. 11
*Post Office at Bury	Commrs. H.M. Works	12, Whitehall-place, S.W.	do.
Additions to Sanatorium, Astley	Leigh (Lancs.) Joint Hospital Board	Banks, Fairclough & Stephen, Archt. Leigh	Oct. 12
*Roads and Footways	Barnet U.D.C.	W. H. Mansbridge, 40, High street, Barnet	do.
*New Bridge	Hertford C.C.	U. A. Smith, 41, Parliament-street, S.W.	do.
*Workhouse	Greenwich Union	T. Dinwiddy, 12, Croom's-Hill, Greenwich	Oct. 13
*Iron Hospitals	Sandown and Shanklin Hospital Board	Clerk, Town Hall, Sandown, I. of W.	do.
*Hall and Buildings	Southboro U.D.C.	W. Harmer, 137, London-road, Southboro	Oct. 15
*Five Cottage Almshouses	Lyme Regis Corp.	W. J. Fletcher, Wimborne	do.
*Buildings, Chimney Shaft, &c.	Bangor Corp.	J. Gill, Town Hall, Bangor	do.
Additions to House, &c. Brynhyfryd, Ruthin	School Governors	J. Hughes, Archt Denbigh	Oct. 17
*Alterations and Additions to Schools	Ruthin County School Govrs.	E. Roberts, Solicitor, Ruthin	do.
Assembly Hall, &c. at School, Llandaff	Governors	G. E. Halliday, Archt. Cardiff	Oct. 18
Additions to Asylum, nr. Wallingford		G. T. Hine, Archt. 35, Parliament st. S.W.	Oct. 20
*Additions to Asylum, Cholsey	Berkshire Lunatic Asylum Com.	G. T. Hine, Archt. 35 Parliament-st. S.W.	do.
*Water Supply, City of Belem, Para, Brazil			Nov. 10
*Joinery of Fifty-six Residences	Brazilian Consulate		No date
*Fifty-three Cottages and Five Blocks of Tenements	Knole View Estate	Manager, Sevenoaks	
Road Works, West Clacton Estate	Tunbridge Wells Corp.	Boro Surv.	do.
Rebuilding House and Shed, Carr-st. Hebburn	C. G. Rounds' Trustees	Baker & May, Archt. Head-street, Colchester	do.
Church, Thomas-street, Sheffield	Newlands & Newlands	J. W. Wardle, Archt South Shields	do.
Hotel, Tebay, Kendal	M. Croft	Ellis Bros. Archt 37, Orchard-st Sheffield	do
Additions to Druidstone, nr. Cardiff	H. B. Cory	J. Hutton, Archt. Kendal	do
Shops and Offices, Corporation-street, Lincoln		Lansdowne & Griggs, Archt. Newport, Mon	do
Warehouses, &c. Corporation-street, Lincoln		W. Mortimer & Son, Archt. Lincoln	do
Villa, Culter, Aberdeen		do	do.
Additions, &c. to Steam Laundry	Darlington, &c. Steam Laundries Co. Ltd.	Beattie & Macdonald, C.E. 21, Bridge-st Aberdeen	do.
Warehouse, &c. Preston-st. Bradford	W. Parkinson	Martin & Davis, Archt. Skinnergate, Darlington	do.
Business Premises, Sheringham, Norfolk	Sheringham Co-op Soc.	Fairbank & Wall, Archt Craven Bank-chambers Bradford	do.
Additions to Business Premises, Kyrle street, Hereford	Industrial Aid Soc.	Watts & Co. Archt. Cromer	do.
Church Tower and Spire, Saltburn-by-Sea		W. W. Robinson, Archt 10, King-street, Hereford	do.
Six Houses, Brighton		Clark & Moscrop, Archt. Darlington	do.
House, Ilkley		C. H. Court, 15, Bradford-square, Woolwich	do.
		Isitt, Atkin, & Hill, Archt. Prudential-bldgs, Bradford	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in.
*Boro Engr.'s General Assistant	Plymouth Corp.	100*l.* rising to 130*l.* per ann.	Oct. 1
*Foreman for Street Gas Lighting	do.	2*l.* 5*s.* per week	do.
*Measuring Clerk in Architect's Department	London C.C.	100*l.* rising to 150*l.* &c.	Oct. 5
*Assistant Organiser of Manual Training	School Board for London	Min. 120*l.* Max. 175*l.*	Oct. 8

Those marked with an asterisk (*) are advertised in this Number. *Competitions, p. iv.* *Contracts, pp. iv. vi. viii. & xxi.* *Public Appointments, pp. xix. & xxi.*

from which is suspended a receptacle which contains the water for discharge.

16,284.—DEVICES FOR APPLYING METALLIC LEAF FOR DECORATIVE PURPOSES: *W. H. Coe.*—The invention is intended to furnish means for depositing the leaf from a spirally-wound package-roll upon the depressions of a grooved or corrugated surface, and consists of the combination of a brush with a frame for holding the package-roll; in operation, the paper slip and its accompanying metallic leaf are brought forward from the package-roll and passed underneath the brush, then, by placing his finger upon the strip near the brush's point, and drawing the brush backwards, the operator effects the laying of the leaf upon the grooved surface, the brush's elastic point serving to depress the leaf and strip downwards; the contrivance is also adapted for applying the leaf to mouldings, by forming the brush's face to correspond with the sections of the mouldings.

NEW APPLICATIONS.

September 5—10.

18,888, M. J. Adams, Moulds and Machinery for making Sanitary Pipes, Traps, and similar articles. 18,890, D. Campbell, Hot Air and Vapour Bath Cabinets. 18,892, J. T. Cope, Ventilating Apparatus. 18,893, Ritchie & Sutherland, Valves for Baths, Basins, &c. 18,900, R. F. Hall, 18,940, H. O. Swoboda, and 19,140, H. V. James, Electrical Arc Lamps. 18,902, J. Hanschildt, Apparatus for Watering the Streets. 18,907, W. Blanckenhorn, Electrical Switch Device. 18,910, J. Onions, Edge-Runner Grinding Mill for Powdering Marls, Bones, Cement, Slags, &c. 18,931, A. Jourdan, Copying, Enlarging, or Reducing Drawings and Designs. 18,932, J. Perl, Platinum Gas Lighting Pellets. 18,936, J. V. Esop, Anti-Corrosive Garments. 18,942, A. Allen, Roofing. 18,943, R. Söderquist, 19,106, Hansen & Kraefting, 19,149, J. S. Goodwin, and 19,280, W. F. Gedge, Acetylene Gas Generators. 18,944, H. Borchardt, Automatic Gas Igniter. 18,953, Jablonski & Niewiarowski, Fire-proof Protecting Compositions and Fire-proof Articles. 18,955, J. W. Thomas, Chimney Pots, &c. 18,969, E. I. Braddock, Composite Pipes. 18,971, P. J. Steinke, Weighing Machines. 18,978, J. Whiteley, Guards for Circular Saws, &c. 18,988, W. Dunn, Chimney Pot Cowls. 18,990, A. J. B. Ward, Self-Locking Flooring Blocks, Tiles, &c. 18,992, J. Watson, Discharging Cesspools, &c. 19,002-3, C. E. Robinson, Wire Fencing. 19,004, W. Scott, Flushing Tanks. 19,011, Kimman & Hurley, Portable Pneumatic Drills. 19,030, M. R. Ruble Pumps. 19,052, G. Anslow, Front Door Locks, Fitted with Latching and Locking Bolts. 19,053, W. H. Baxter, Means for Driving Elevators, Specially Applicable to Stone-Breaking and Ore-Crushing Machines and Screens. 19,057, J. Trimming, Drawing Squares. 19,063, M. J. Adams, Distributing Apparatus for Sewage Tanks and other Purposes. 19,064, D. Campbell, Gas or Oil Heater for Use in Hot-air and Vapour Bath Cabinets, and for

Cooking and Heating Purposes. 19,076, Lundbergs, Wall Connections for Electrical Lighting. 19,092, G. F. Griffin, Caps and Couplings for Pipes, &c. 19,093, W. E. Shuffield, Draught Excluders. 19,102, F. Boas, Material Suitable for Wall Plaster, &c. 19,115, A. H. Broadwell, Ascending, Descending, and Turning Towers. 19,119, Ward & Sykes, Safety Gate for Hoists, Lifts, &c. 19,127, J. C. Hamilton, Explosives for Blasting. 19,129, Holden & Berry, Securing Brush and Similar Handles. 19,130, Brewin & Rodgerson, Water-flow Meters. 19,136, H. Neil, Waterproof Solution for Wood, &c. 19,137, K. Maetze, Window, Cellar, Door, and Other Fittings. 19,141, Brooks & Grueber, a Flexible Ruler Rule. 19,146, G. Daws, Fanlight and Pivotted Window Fastener. 19,147, J. H. Nunn, Indiarubber Watercloset Cones. 19,161, S. I. Adams, Bricks. 19,170, C. R. Farquharson, Screens for Crushing Machines. 19,189, J. L. Jones, Drilling Machines. 19,194, A. H. O'Brien and Others, a Safety Lock. 19,210, T. A. Hudson, Safety Devices for Hoists, &c. 19,237, G. Kruse, Joining Stone or Earthenware Plates and Blocks for Building Purposes. 19,241, E. Breslauer, a Keyless Lock. 19,243, F. W. Francis, Fusible Cut-outs for Electrical Circuits. 19,246, B. G. Lamme, Systems of Electrical Distribution and Regulation. 19,251, Ormrod & Wild, Brick-making Machines. 19,252, A. H. Humphrey, Heaters for Bath-water, &c. 19,255, Price & Johnson, Covers or Lids for Sewer Gas Electrical and Telephonic Supply Shafts, Holes, Gullies, &c.; and in their Supporting Frame Works. 19,264-5, C. Canté, Electrical Meters and Coin-freed Mechanism. 19,273, A. Barraclough, Ball Taps or Valves for Cisterns, &c. 19,277, F. H. Collins, Knobs for Locks, Latches, Doors, &c. 19,290, J. J. Ritchie, Cooking Apparatus. 19,307, K. von Vietinghoff-Scheel, Gas Lighter. 19,323, A. W. Price, Acetylene. 19,329, A. Bein, Carbons and Carbon Pencils for Electrical Lighting. 19,334, H. J. Donahoe, Metal Posts.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

September 5.—By W. DEW & SON (on the Premises).

Llanfairfechan, &c., Carnarvon.—Various building sites, 146 a. 3 r. 36 p., f. £12,910
Moranedd and 0 a. 2 r. 19 p., f. 1,300
Penlan Farm, 21 a. 0 r. 24 p., f. 1,600
Saw-mill, yard, and 2 a. 2 r. 37 p., f. 450
Two houses, cottage, and 0 a. 1 r. 17 p., f. 265
Nant Dwyst and 6 a. 3 r. 18 p., f. 540
Freehold ground-rents, 29*l.* 13s. 5d., reversions in 967, 62, and 59 yrs. 600
Bron-y-maen and 2 a. 0 r. 4 p., f. 3,200

September 7.—By Messrs. SPELMAN (at Great Yarmouth).

Runham, Norfolk.—A freehold and copyhold farm, area 77 a. 3 r. 8 p. 2,100

September 8.—By MOORE & SONS (at Corse Lawn).

Corse Lawn, Worcester.—"The Green Dragon Hotel" and 18 a. 3 r. 0 p., f. 1,675

September 10.—By THORNBORROW & Co. (at Alston).

Alston, Cumberland.—The Blagill Estate, 58 a. 0 r. 10 p., u.t. 713 yrs., lord's rent, 10s. 10½d. . 1,055
Kirkhaugh, Northumberland.—The Ayle Estate, 86 a. 1 r. 22 p., u.t. 770 yrs., lord's rent, &c., 1*l.* 5s. 4d. 905

By Messrs. SPELMAN (at Norwich).

Surlingham, Norfolk.—Lowen Lodge and 2 a. 2 r. 28 p., f. 650

September 12.—By G. B. HILLIARD & SON.

Purleigh, Essex.—Dedman's and Andrew's Farm, 141 a. 2 r. 10 p., f. 1,600

By W. DEW & SON (at Beaumaris).

Llandegfan, Anglesey.—Glyn Garth Post Office and 0 a. 1 r. 10 p., f. 625
Tan-y-Ffordd and 0 a. 1 r. 33 p., f. 290
Garth View and 0 a. 1 r. 1 p., f. 430
Tan-y-Coed and Hill Side Cottage, 0 a. 3 r. 11 p., f. 2,200
Glan-y-Afon and 0 a. 2 r. 28 p., f. 1,125
Min-y-don Cottages and The Old Toll House, 0 a. 1 r. 24 p., f. 565
Glan-y-Don and 0 a. 2 r. 13 p., f. 780
Tan-y-Ffordd Cottage and 0 a. 1 r. 16 p., f. 350
Three building sites, 0 a. 3 r. 26 p., f. 490

By CASTIGLIONE & GIBBINGS (on the premises).

Dalston, Cumberland.—The King's Arms Hotel, f. 1,080
A freehold house and cottage 390

September 13.—By FLEURET, SONS, & ADAMS (at Masons' Hall Tavern).

Southall, Middlesex.—Featherstone-rd., The Featherstone Arms b.-h.; also 1 and 2, Featherstone Villas and Featherstone Cottage, f., r. 130*l.* 7,610

By CASTIGLIONE & GIBBINGS (at Carlisle).

Wetheral, Cumberland.—Knothill and 20 a., f. .. 1,275

By Messrs. SPELMAN (at Stalham).

Hasbro'-on-Sea, Norfolk.—Grub-st. farm, 24 a. 2 r. 26 p., f. 900
Enclosures of building land, 4 a. 2 r. 10 p., f. .. 210

September 14.—By F. J. BISLEY & SONS.

Bermondsey.—89, Drummond-rd., u.t. 44 yrs., g.r. 3*l.* 3s., r. 30*l.* 395
Rotherhithe.—115, Abbeyfield-rd., u.t. 56 yrs., g.r. 5*l.* 340
17, Gomm-rd., u.t. 51 yrs., g.r. 4*l.* 405
Camberwell.—39, 41, and 43, East Surrey-grove, u.t. 59 yrs., g.r. 15*l.* 695

By G. ERNEST CLARKE.

Leyton.—66 and 68, Colville-rd., u.t. 90 yrs., g.r. 8*l.* 455

By SLADE & BUTLER.

Plaistow.—18 to 34 (even), Rudolph-rd., f., r. 143*l.* 1,400
Hampton, Middlesex.—High-st., a plot of building land, f. 450

By GREENSLADE & KIDNER (at Tiverton).

Uplowman, Devon.—Higher Chieflowman Farm, 119 a. 0 r. 21 p., f. 3,325
Hembrows and Stone enclosures, 12 a. 3 r. 21 p., f. 450

By HOLLIS & WEBB (at Collingham).

Collingham, Yorks.—Four enclosures, 27 a. 3 r. 39 p., f. 1,650
Bardsey, Yorks.—Silver Hills enclosures, 57 a. 1 r. 36 p., f. 1,650
Five enclosures, 41 a. 2 r. 11 p., f. 1,730

September 15.—By J. G. DEAN & Co.

Balham.—78, 80, 82, and 84, Rossiter-rd., u.t. 75 yrs., g.r. 42*l.*, r. 140*l.* 1,000

By GIDDY & GIDDY.

Stoke Poges, Bucks.—Stoke Lodge and 4 a., f..... £1,350

By JACKSON & Co.

Homerton.—65, Church-rd., f., r. 30*l.* 460
8, Anderson-rd., f. 220
Commercial-rd. East.—20 and 21, Upper Fenton-st., u.t. 11½ yrs., g.r. 4*l.* 146

By MARK LIELL & SON.

Bow.—25, Bow-rd., u.t. 18½ yrs., g.r. 8*l.*, r. 68*l.*... 400
156 and 158, Fairfoot-rd., u.t. 64 yrs., g.r. 7*l.* 5s. 395
113 and 115, Fairfoot-rd., u.t. 64 yrs., g.r. 8*l.* .. 515
134 and 136, Fairfoot-rd., u.t. 64 yrs., g.r. 7*l.* .. 485
105, Campbell-rd., f., r. 39*l.* 490
Bromley-by-Bow.—37 to 47 (odd), Knapp-rd., u.t. 64 yrs., g.r. 21*l.* 1,465
Stepney.—66 and 68, Turner's-rd., u.t. 65½ yrs., g.r. 10*l.*, r. 60*l.* 625

By R. PRICE & SON.

Hackney.—Southborough-rd., i.g.r. 20*l.* 5s., u.t. 44 yrs., g.r. 4*l.* 240
Clapham.—18 and 24, Haselrigge-rd., u.t. 64 yrs., g.r. 11*l.* 700

September 16.—By J. W. KEMSLEY.

Ilford, Essex.—Uphall-rd., two blocks of building land, 14 a. 0 r. 1 p., f. 5,150

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.

PRICES CURRENT OF MATERIALS.

TIMBER.		
Greenheart, B.G.	ton	8/0/0 0/0/0
Teak, E.I.	load	10/10/0 15/10/0
Sequoia, U.S.ft.cu.		1/9/0 2/0/0
Ash, Canada, load		4/5/0 5/10/0
Birch, do.		4/0 0 5/15/0
Elm, do.		5/0/0 6/0/0
Fir, Dantsic, &c..		2/10/0 4/10/0
Oak, do.		2/0/0 4/0/0
Canada		4/0/0 6/0/0
Pine, Canada red		0/0/0 0/0/0
Do. yellow		4/5/0 6/5/0
Lath, Dantsic, fath		4/10/0 5/10/0
St. Petersburg..		5/0/0 8/10/0
Wainscot, Riga, &c., log		4/5/0 6/5/0
Odessa, crown		4/5/0 6/5/0
Deals, Finland 2nd & 1st std 100		9/10/0 10/0/0
Do. 4th & 3rd ..		9/10/0 10/0/0
Do. Riga		8/0/0 9/0/0
St. Petersburg, 1st yellow		11/10/0 14/0/0
Do. 2nd yellow.		10/10/0 12/0/0
Do. white		9/10/0 11/10/0
Swedish		9/10/0 16/10/0
White Sea		10/10/0 17/15/0
Canada, Pine 1st		18/0/0 24/10/0
Do. do. 2nd		13/0/0 16/10/0
Do. do. 3rd, &c.		6/0/0 9/10/0
Do. Spruce, 1st		8/10/0 10/10/0
Do. do. 3rd and 2nd		7/0/0 8/10/0
New Brunswick		7/0/0 8/0/0
Battens all kinds		5/0/0 16/0/0
Flooring boards, sq., 1 in. prep. 1st		9/6 16/0
Do. 2nd		8/0 13/0
Other qualities—		6/3 7/0
Cedar, Cuba, ft.		/4 /4½
Honduras, &c.		/3½ /4½
Mahogany, Cuba		/5½ /7½
St. Domingo, cargo av.		/5 0/0/3
Mexican, do. do.		/3½ /4
Tobasco, do. do.		/4 /6½
Honduras, do.		/4 /6
Box, Turkey, ton		4/0/0 15/0/0
Rose, Rio		7/0/0 14/0/0
Bahia		6/0 0 12/0/0
Satin, St. Doming.		0/0/5 0/1/0

TIMBER (*continued*).		
Satin, Porto Rico	0/0/9	0/2/0
Walnut, Italian ..	0/0/3	0/0/7
METALS.		
Iron—Pig, in Scotland	ton 2/8/3	0/0/0
Bar, Welsh, in London	5/15/0	5/17/6
Do. do. at works in Wales	5/10/0	5/12/6
Do. Staffordshire, in London	6/5/0	7/10/0
COPPER—British cake and ingot	55/10/0	56/0/0
Best selected ..	56/0/0	56/10/0
Sheets, strong..	60/10/0	61/10/0
Chili bars	52/2/6	0/0/0
YELLOW M. L. lb.	5d.	5¼d.
LEAD—Pig		
Spanish	ton 13/0/0	0/0/0
English com. bands	13/5/0	0/0/0
Sheet, English 6 lbs. per sq. ft. and upwards ..	14/5/0	0/0/0
Pipe	14/15/0	0/0/0
ZINC—English sheet	ton 25/10/0	0/0/0
Vieille Montagne	26/10/0	0/0/0
Spelter	21/17/6	22/2/6
TIN—Straits	74/5/0	0/0/0
Australian	74/15/0	75/0/0
English Ingots..	76/10/0	77/10/0
Banca	0/0/0	0/0/0
Billiton	/0/0	2/0/0
OILS.		
Linseed	ton 17 2 6	0/0/0
Cocoanut, Cochin	27/15/0	0/0/0
Do. Ceylon	22/0/0	0/0/0
Palm, Lagos	21/15/0	0/0/0
Rapeseed, English pale	27/10/0	0/0/0
Do. Brown	26/0/0	0/0/0
Cottonseed ref. ..	14/5/0	15/5/0
Oleine	13/10/0	14/10/0
Lubricating U.S.	0/5/3	0/7/6
Do. Black	0/5/0	0/6/6
TAR—Stockholm	barrel 1/5/0	0/0/0
Archangel	0/12/6	0/0/0
Turpentine	22/15/0	23/0/0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.* N.B.—We cannot publish Tenders unless authenticated by the name and address of the sender; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under £100 unless in some exceptional cases and for special reasons.]

BISHOP AUCKLAND.—For levelling, paving, &c., New-street and Oakley-street, West Auckland, for the Rural District Council. Mr. C. Johnston, surveyor, 1, Cradock-street, Bishop Auckland:—

G. Hethesington	£494 16 0
S. Walker	460 8 0
G. H. Bell	416 12 9
T. Hilton, Bishop Auckland (accepted)	416 0 0

BLACKBURN.—Accepted for the erection of a palm house and conservatories in the public park:—
Lockerbie & Wilkinson, Limited, Birmingham £1,495

CHELMSFORD.—For the erection of a laboratory and workshops, King Edward's Grammar School. Mr. Charles Pertwee, architect, Chelmsford:—

H. Potter	£571 2 6	F. Johnson, Chelmsford*	£528 10 0
Bunning & Son	536 0 0		

* Accepted.

CHELMSFORD.—For the erection of a small house in Queen's-road, for Mr. Bickmore. Mr. R. Mawhood, architect:—

W. Samms	£348	W. Fincham	£345
F. Johnson	345	J. Gowers (accepted)	328

CLACTON-ON-SEA.—For the erection of a cottage hospital, for the Committee. Mr. J. W. Martin, architect, Station Chambers, Clacton-on-Sea. Quantities by Mr. J. Kennard, 2, Devonshire-square, E.C.:—

Symes	£2,475	Everett & Son, Colchester*	£2,250
Dixon	2,412	Creen & Hussey	2,058
McKay	2,330		

Alternative Scheme.

Symes	£1,285	Green & Hussey	£1,057
Dixon	1,184	McKay†	965
Everett & Son*	1,170		

* Accepted. † Withdraw

DUBLIN.—For the erection of a residence for the Workhouse Master, for the North Dublin Union Guardians. Mr. Denis J. Morris, architect, 24, Cabon-road:—

Pemberton & Son	£870	H. J. Monks	£800
J. Whelan	830	M. Glynn, Dublin*	769

* Accepted.

ELLON (Aberdeen).—For additions to Gordon Hospital, for the County Council:—

Masonry.—Angus McDonald & Co., Aberdeen	£428 0 0
Carpentery.—Wm. Auld, Ellon	325 0 0
Plastering.—W. Sivewright, Ellon	118 12 0
Slating.—F. McRae, Ellon	65 3 6
Drainage and Water.—Geo. Fraser, Ellon	197 0 7
	£1,113 16 1

ENFIELD.—For the extension of Bush Hill Park School, for the Enfield School Board. Mr. G. E. T. Laurence, architect, Bridge House, 181, Queen Victoria-street, E.C. Quantities by Messrs. Campbell & Son, Finsbury-circus, E.C.:—

Jennings & Grenfell	£10,843	P. Banyard	£6,995
A. Porter	8,260	W. Lawrence	6,792
W. Willmot & Sons	8,127	H. Almond & Son	6,750
S. Wilkinson & Sons	7,975	Fairhead & Son, Enfield*	6,579
J. Chessum & Sons	7,879		

* Accepted subject to Education Department's approval.

FRILSHAM (Berks).—For the erection of schools and teacher's house, &c., for Sir Cameron Gull, Bart., M.P. Mr. T. Gambier Parry, architect. Quantities by Messrs. Northcroft, Son, & Neighbour:—
Benfield & Loxley, Oxford £1,659 | J. Bottrill & Son, Reading £1,475

HEXTHORPE (Yorks.).—For the execution of street works, for the Balby-with-Hexthorpe Urban District Council. Mr. George Gledhill, Surveyor, Council Offices, Balby, Doncaster:—

S. Roberts	£1,533 8 2	G. Gledhill	£1,424 12 2
G. Hall	1,471 15 4	G. Ellis, Balby*	1,356 8 1

* Accepted.

LEEDS.—Accepted for additions, &c., to two houses and shops, Nos. 115 and 117, Burley-road, for Messrs. Perkins & Co. Mr. F. Mitchell, architect, Albion-street, Leeds:—

Brick and Stonework.—C. Lucas & Son, Roberts-place, Burley-road	£386 6 5
Joinery.—Irving & Bristow, Chorley-lane	
Plumbing.—Arthur Britton, Burley-road	
Plastering.—Thos. Moore, Concord-street	
Painting.—Alfred Roberts, Burley-street	

LITTLEHAMPTON.—For the supply of 1,000 tons flints for the Urban District Council:—
W. Stanbridge, Worthing ..... 5s. 2d. per ton

LONDON.—For making-up private streets, Hornsey, for the Urban District Council:—

	Barrington-road (third section).	Harefield-road.	Hampden-road (second section).
	£	£	£
J. A. Dunmore, Crouch End	981	929	1,637
Killingback & Co., Camden Town	962	911	1,517
T. Adams, Wood Green*	905	796	1,534
H. Clark, Andover-road	979	937	1,642
Predrett & Co., Finsbury Park	1,078	928	1,803
G. Bell, Tottenham	917	803	1,547
W. Griffiths, Bishopsgate-street, Without	948	804	1,610
Williamson & Sons, Green Lanes	939	889	1,605

* Accepted.

LONDON.—For the erection of a block of residential flats Mazenod-avenue, West Hampstead. Messrs. Palgrave & Co. architects, 28, Victoria-street, S.W. Quantities by Mr. Geo Stephenson:—

Stephens, Bastow & Co.	£23,339	F. T. Chinchen	£19,590
Allen & Sons	22,500	Smith & Son, Norwood, S.E.*	19,516
F. Gough & Co.	21,534		
John Bennett	19,945		

* Recommended for acceptance.

LONDON.—For rebuilding Nos. 69, 70, and 71, South Audley-street, Mayfair. Mr. Howard Chatfeild Clarke, architect, 63, Bishopsgate-street Within, E.C.:—

J. Thompson & Co.	£14,782	Ashby & Horner	£13,295
Holland & Hannen	13,893	Clarke & Bracey	13,000
Brown, Son, & Blomfield	13,341	E. Lawrance & Sons	12,977
Hall, Beddall & Co.	13,313	H. Lovatt (accepted)*	12,500

* Exclusive of foundations, already executed.

LONDON.—For alterations and repairs at No 13, Russell-square, W.C. Mr. W. Ernest Hazell, architect, 23, Moorgate-street, E.C.:—

C. W. Patten	£2,015	Parkinson & Sons	£1,820
Stevens Bros.	1,856	Bristow & Sons	1,798

LONDON.—Additions and alterations to the "Faunce Arms" public house, Kennington, for Mr. Chesterton. Mr. B. Wilkinson, architect:—

W. Smith	£1,200	Burman & Sons	£1,143
Edwards & Medway	1,187	R. S. Buckeridge	1,120
C. Ansell	1,165		

LONDON.—For the construction of an underground convenience, Hoxton-street, for the Shoreditch Vestry. Mr. J. Rush Dixon, C.E., Vestry Offices, Town Hall, Old-street, E.C.:—

J. Dolman & Co.	£2,666	G. Jennings, Lambeth	£2,085
Doulton & Co.	2,150		

LONDON.—For alterations and repairs to No. 13, Russell-square, W.C., for Sir George Williams. Mr. Ernest Hazell, architect, 23, Moorgate-street, E.C.:—

C. W. Patten	£2,015	Parkinson & Son	£1,820
Stephen Bros.	1,856	R. Bristow & Sons	1,790

LYTHAM (Lancs.)—For the supply of Welsh granite (800-900 tons), for the Urban District Council. Mr. W. Dixon, surveyor, Council Offices, Lytham:—

Threlkeld Granite Co.	£382 10	Brundritt & Co., Runcorn (accepted)	£213 15

MIDDLETON, (Lancs).—For the execution of street works, Blackley-street, and others, for the Corporation. Mr. W. Welburn, Borough Surveyor, Town Hall, Middleton. Quantities by Borough Surveyor:—

E. Cheetham	£224 15 3	Etheridge & Clarke, Manchester*	£142 14
R. Partington & Son	150 5 9		
Thos Kilburn	145 6 4		

* Accepted.

NEW BROMPTON (Kent).—For additions, &c., to chapel, Canterbury-street, for the Wesleyan Trustees. Messrs. J. W. Nash & Son, architects, High-street, Rochester:—

H. Wyles	£780	H. E. Phillips, New Brompton*	£580
G. E. Woollard	660		
T. Cornelius	589		

* Accepted.

NEWMARKET.—For the erection of a house, Bury-road, Newmarket. Mr. Walter K. Bedingfield, architect, 16, Friar-lane, Leicester. Quantities by the architect:—

A. Coe	£1,986	H. Holland	£1,800
Shillitoe & Son	1,950	Coulson & Lofts	1,790
H. Wilmott	1,050	Kerridge & Shaw	1,749
H. J. Linzell	1,857	J. G. Cowell (accepted)	1,748

NEWMARKET.—For the erection of house at Newmarket, Messrs. Heaton & Gibb, architects, Newmarket. Quantities by Stoner & Sons, 8, Blomfield-street, E.C.:—

H. Plummer	£2,765	A. J. Bateman	£2,277
H. J. Linzell	2,447	J. G. Cowell*	2,146

* Accepted at £2,000 reduced.
[Architect's estimate, £2,058].

PUDSEY (Yorks.).—Accepted for the construction of filtration tanks. Fartown Mill. Messrs. Nelson & Savage, architects, 15, Park-row, Leeds:—
Thomas Wood, Radcliffe-lane, Pudsey £256
[Eight tenders received.]

RAMSGATE.—For the erection of offices for the Corporation. Mr. W. A. Mc'Intosh Valon, engineer, Ramsgate:—

		Extra for staircase.
E. Padget & Sons	£5,198 13 0	£79 0 0
J. M. Paramor & Sons	4,250 0 0	135 0 0
C. Home	4,658 4 4	51 12 5
Hayward & Paramor	3,998 0 0	99 0 0
Jarman & Sons, Ramsgate*	3 931 2 0	103 16 0

* Accepted.

READING.—Three houses in Berkeley-avenue East, for Mr. J. Bligh Monck. Messrs. Cooper & Howell, architects:—

	One House.	Two Houses.	Three Houses.
Higgs & Son	1,109	2,060	3,160
G. S. Lewis & Bros.	1,086	2,012	3,090
Collier & Catley	1,058	2,018	3,086
J. Bottrill & Son	1,065	1,998	3,050

ROMFORD.—For the erection of a cottage, stable, &c. at Town Yard, Market-place, for the Urban District Council. Mr. J. Turvey, Surveyor, Market-place, Romford:—

T. Bruty	£960 7	G. J. Harvey, Romford*	£886 0
J. Newlin	920 10		

* Accepted.

RUABON.—For the erection of a Wesleyan Chapel, Glyn Ceirog. Mr. R. T. Jones, architect, 3, Cambrian-terrace, Llangollen:—

R. Williams	£408 0 0	Morgan Jones, Os-westry*	£261 0 0
Jones & Evans	368 2 6		
Richard Jones	303 0 0		

* Accepted.
The trustees supplied all building stones, roofing slates, and crest; lime and sand and concrete, sills, heads, quoins, plinths, and steps.

SENGHENYDD (Wales).—For the erection of a chapel, for the Calvinistic Methodists:—

J. Howells	£1,862	J. P. Williams, Senghenydd*	£1,670
D. Evans	1,793		
T. Rossiter	1,780	J. E. Lloyd	1,635
J. Lewis	1,680	Spratt Bros.	1,484

* Accepted.

SOUTHEND.—Accepted for the execution of street works, Hadleigh-road, &c., for the Corporation. Mr. A. Fidler, C.E., Clarence-road, Southend:—

Hadleigh-road.
W. Iles, Sutton-road £406

Wickford-road.
W. Iles, Sutton-road £376

Canewdon-road.
W. Iles, Sutton-road £577

Claremont-road.
W. Iles, Sutton-road £388

WALTHAMSTOW.—For alterations and additions to the "Rose and Crown," Hoe-street, North Walthamstow, for Mr. John Payne. Mr. Thos. Keating, architect and surveyor, Walthamstow:—

A. J. Reid	£1,873	W. Pringle	£1,631
E. Fuller & Son	1,795	A. Hood (accepted)	1,623

[Architect's estimate, £1,529 8s.]

WOOLWICH.—For the removal of eleven water-closet apparatus, with cisterns, and other plumbing work, at the workhouse, for the Guardians of Woolwich Union. All goods specified to be Henry Doulton & Co.'s:—

Greenaway	£326 13 10	A. H. Inns	£166 0 0
Mills	193 0 0	Henry Doulton*	143 13 0
Cowley	182 10 0	Chapman Bros.	125 0 0
Richardson	170 0 0	Beazley	125 0 0

* Accepted.

With reference to the erection of factory premises at Chingford, the results of tenders for which appeared in our last issue, Mr. J. Rookwood asks us to state that he is not the architect of the building, but the quantity surveyor: the mistake was not ours.

TO CORRESPONDENTS.

J. L. (amounts should have been stated).

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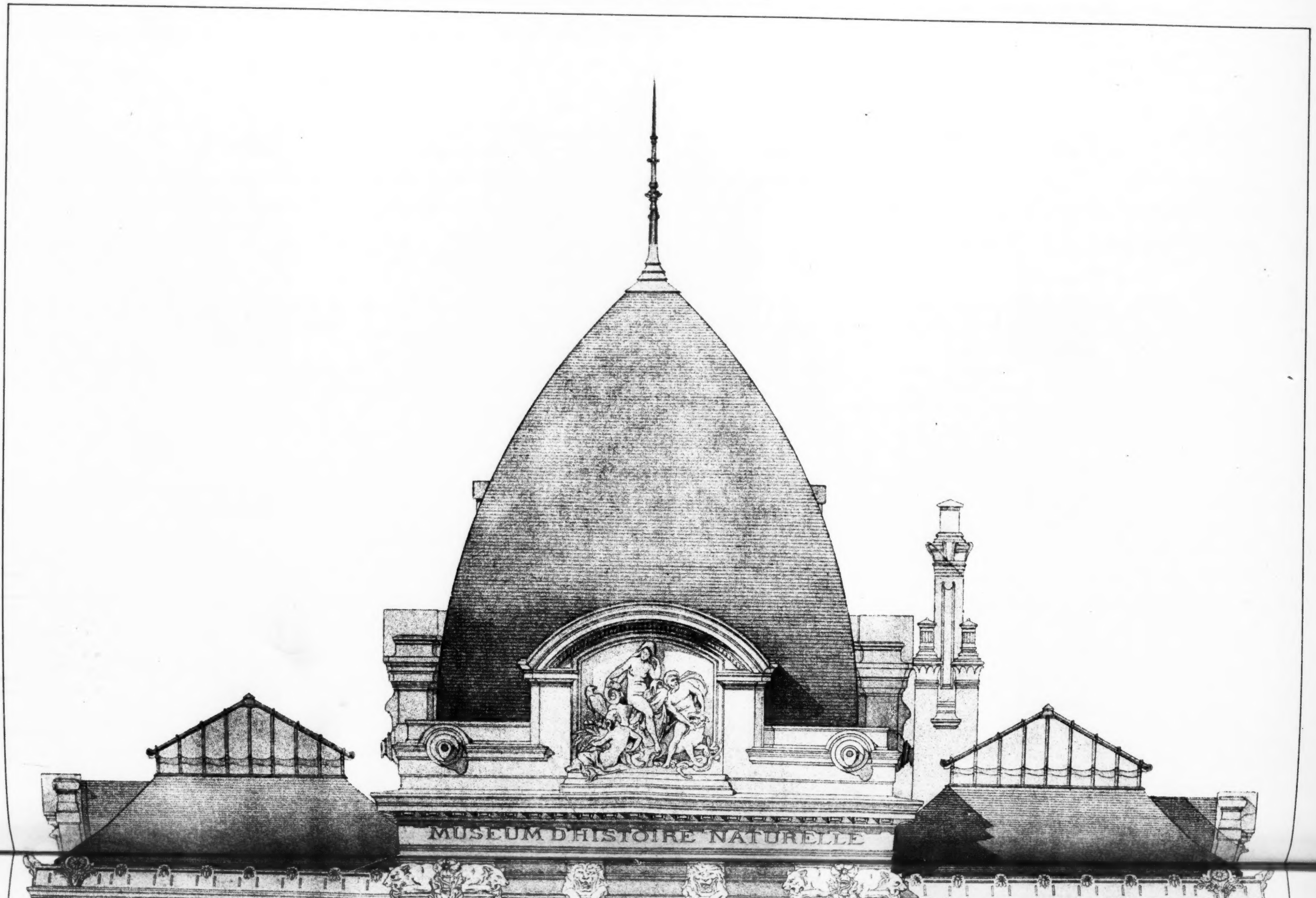
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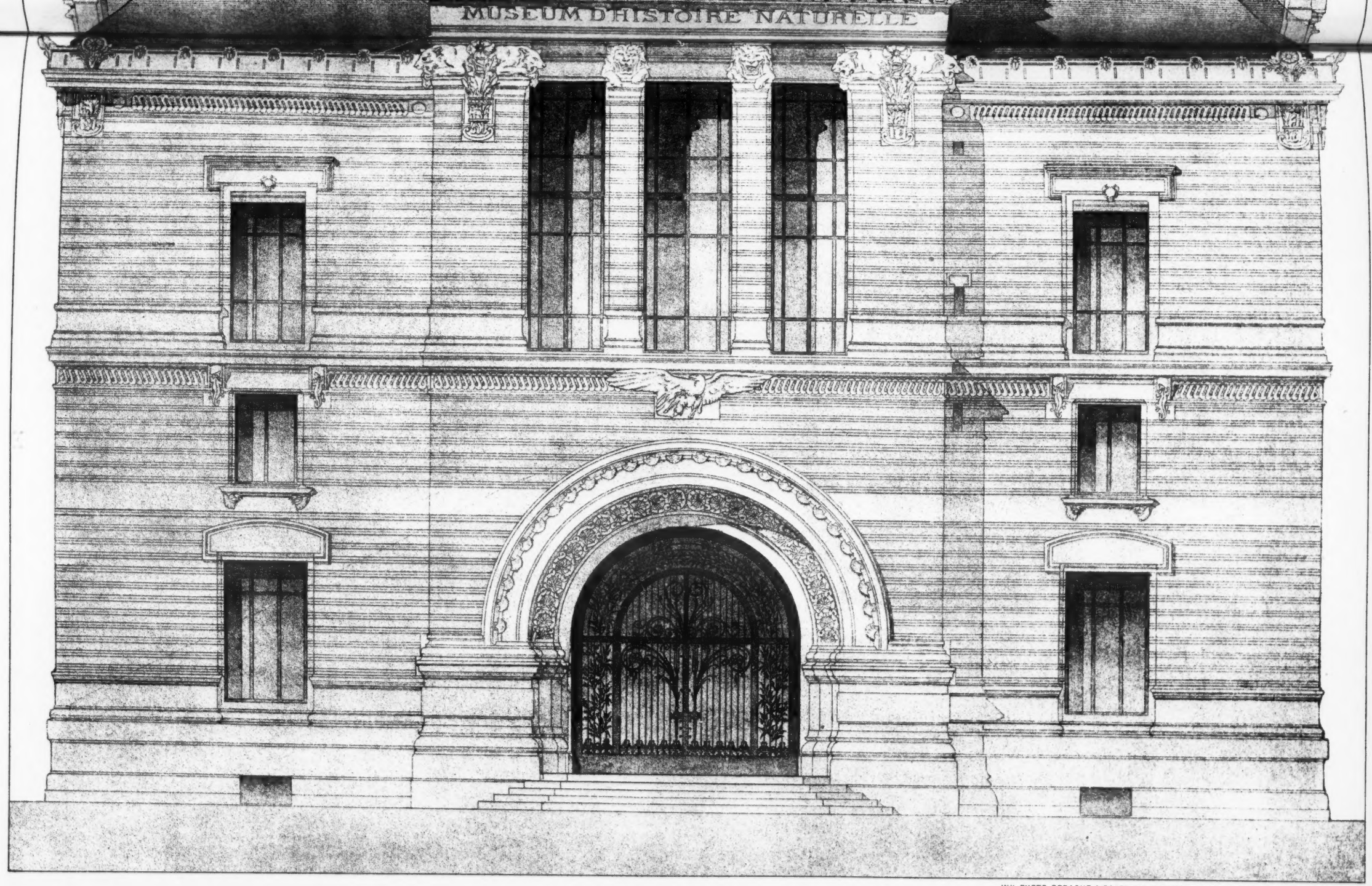

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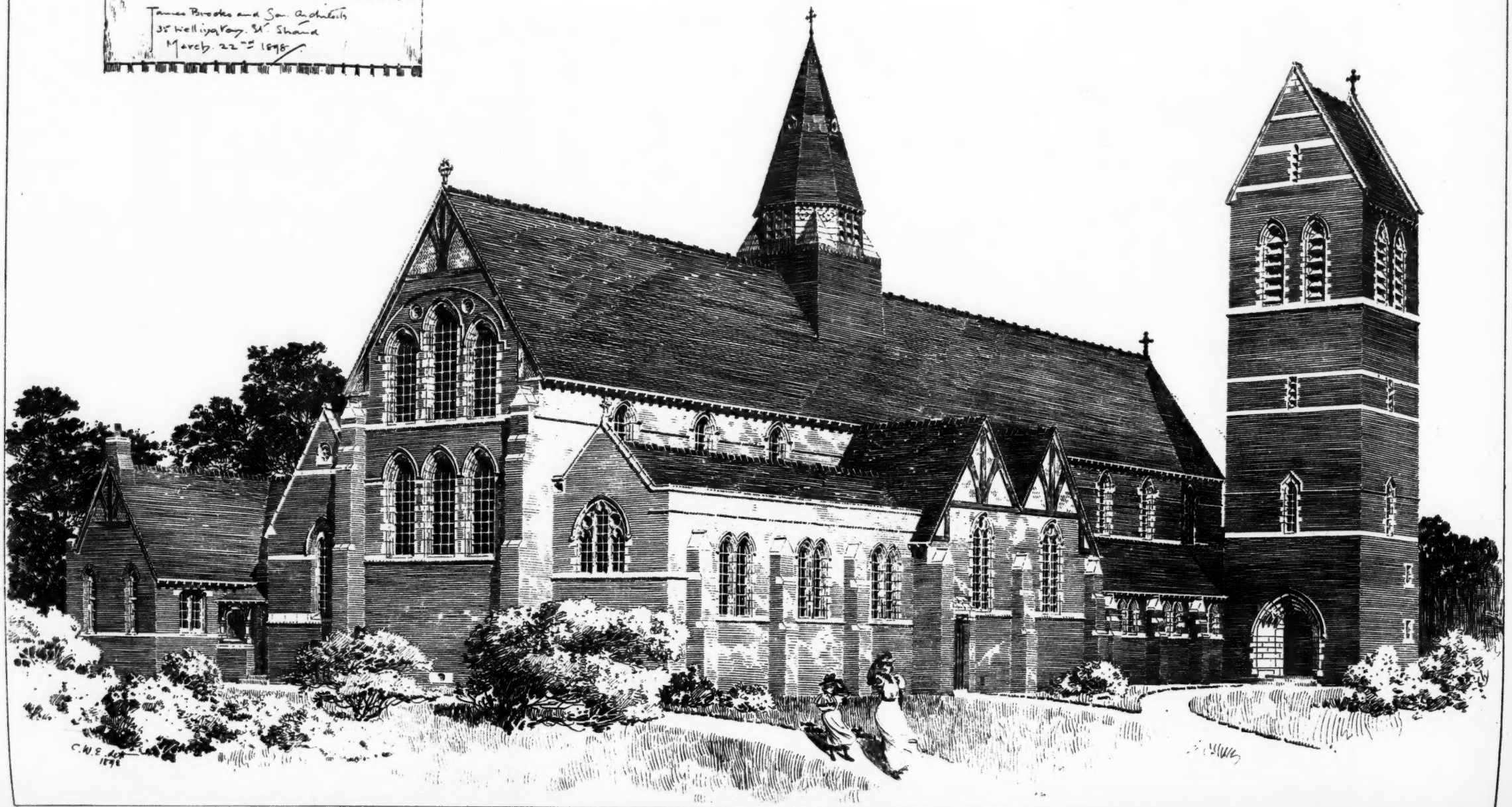

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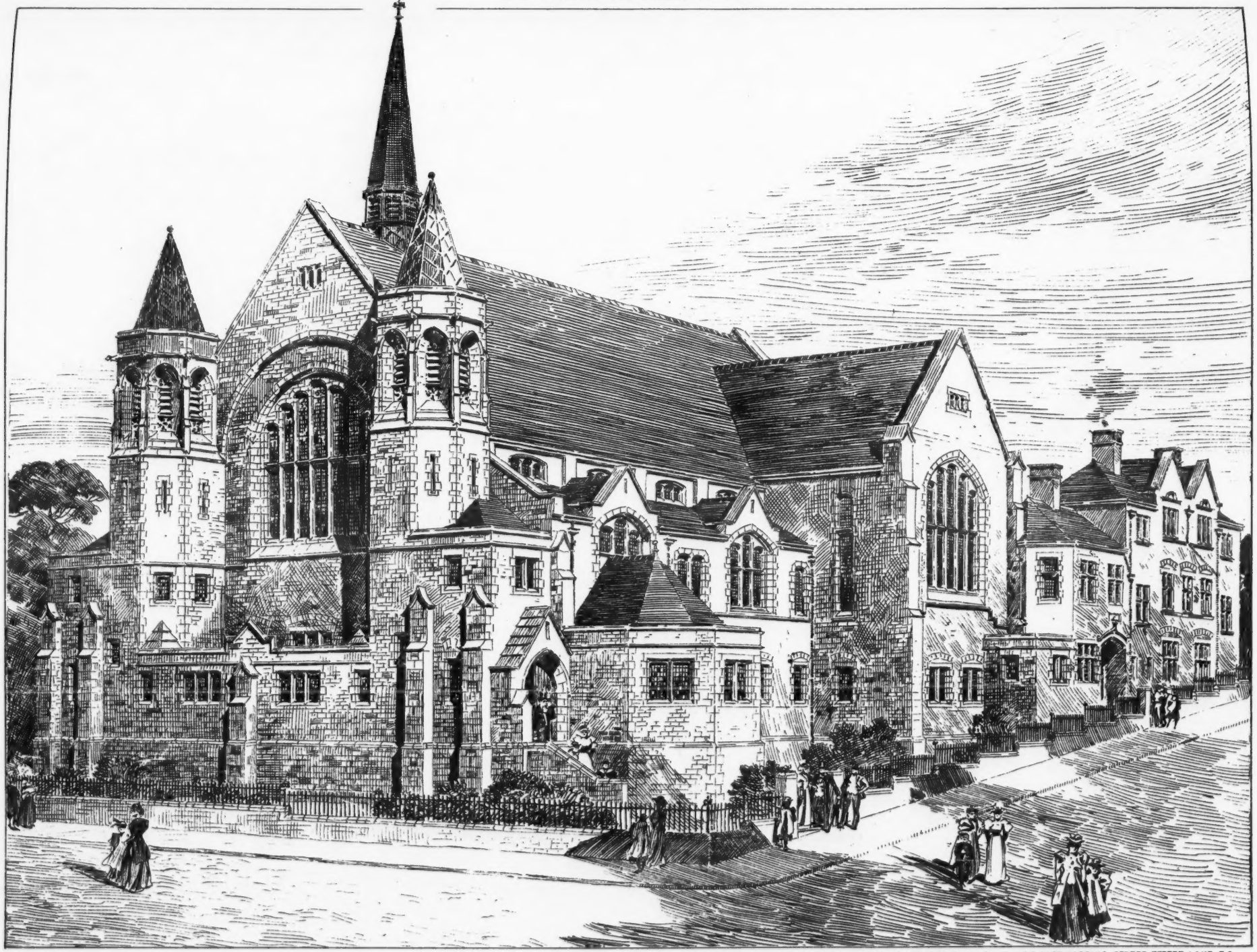

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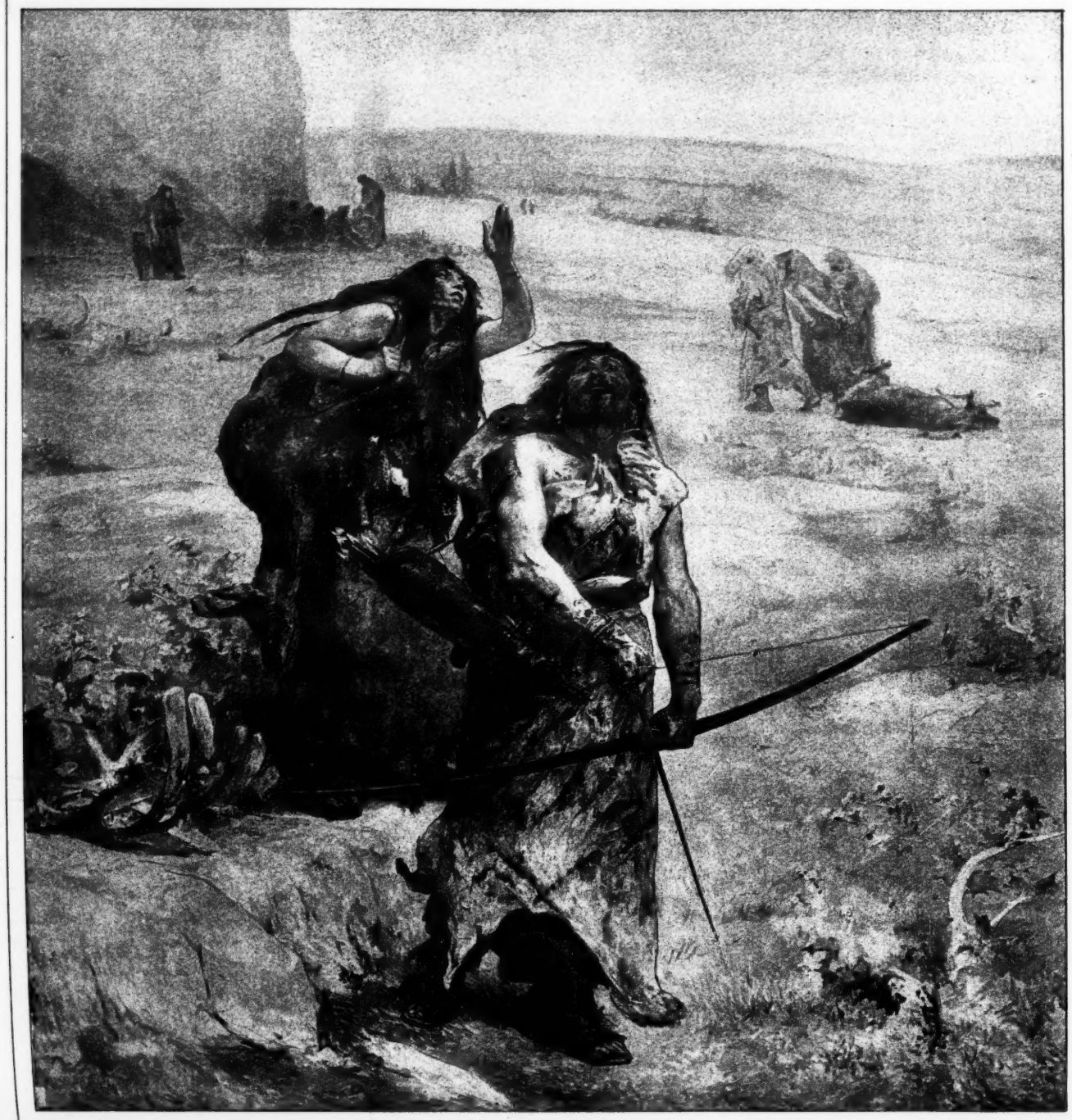
BEECH GROVE CONGREGATIONAL CHURCH AND HALL, NEWCASTLE-ON-TYNE.—Mr. Stephen Piper, Architect.



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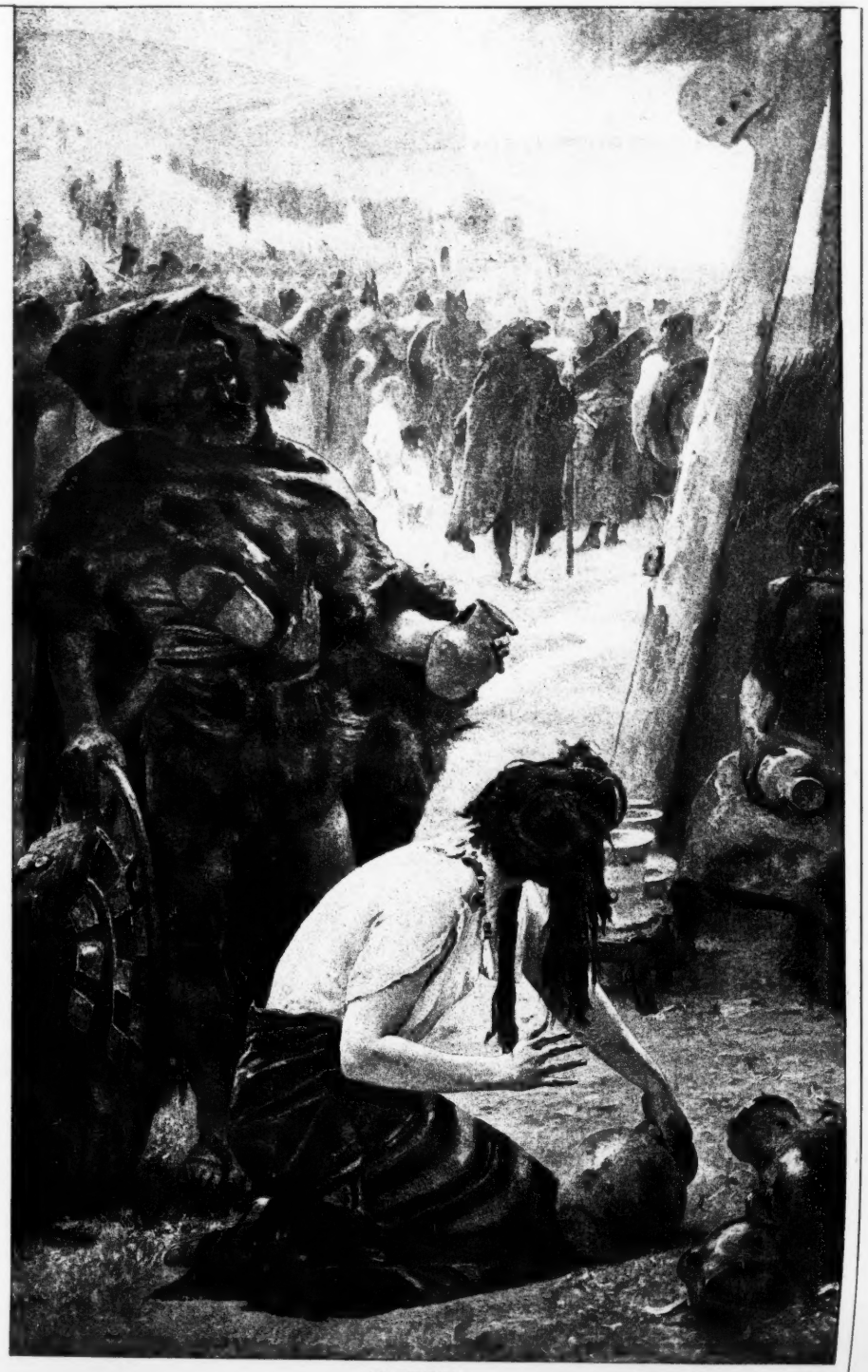

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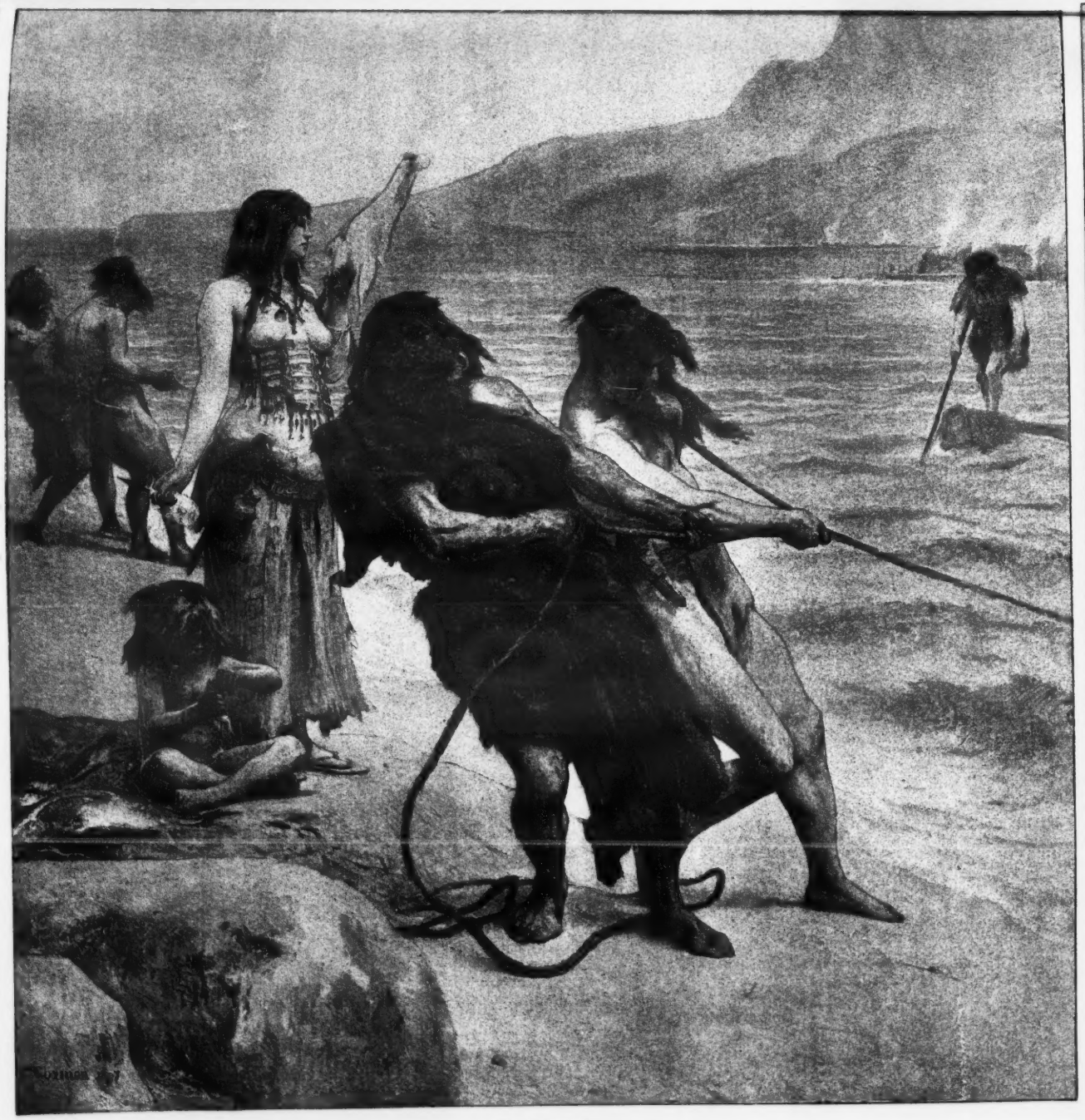

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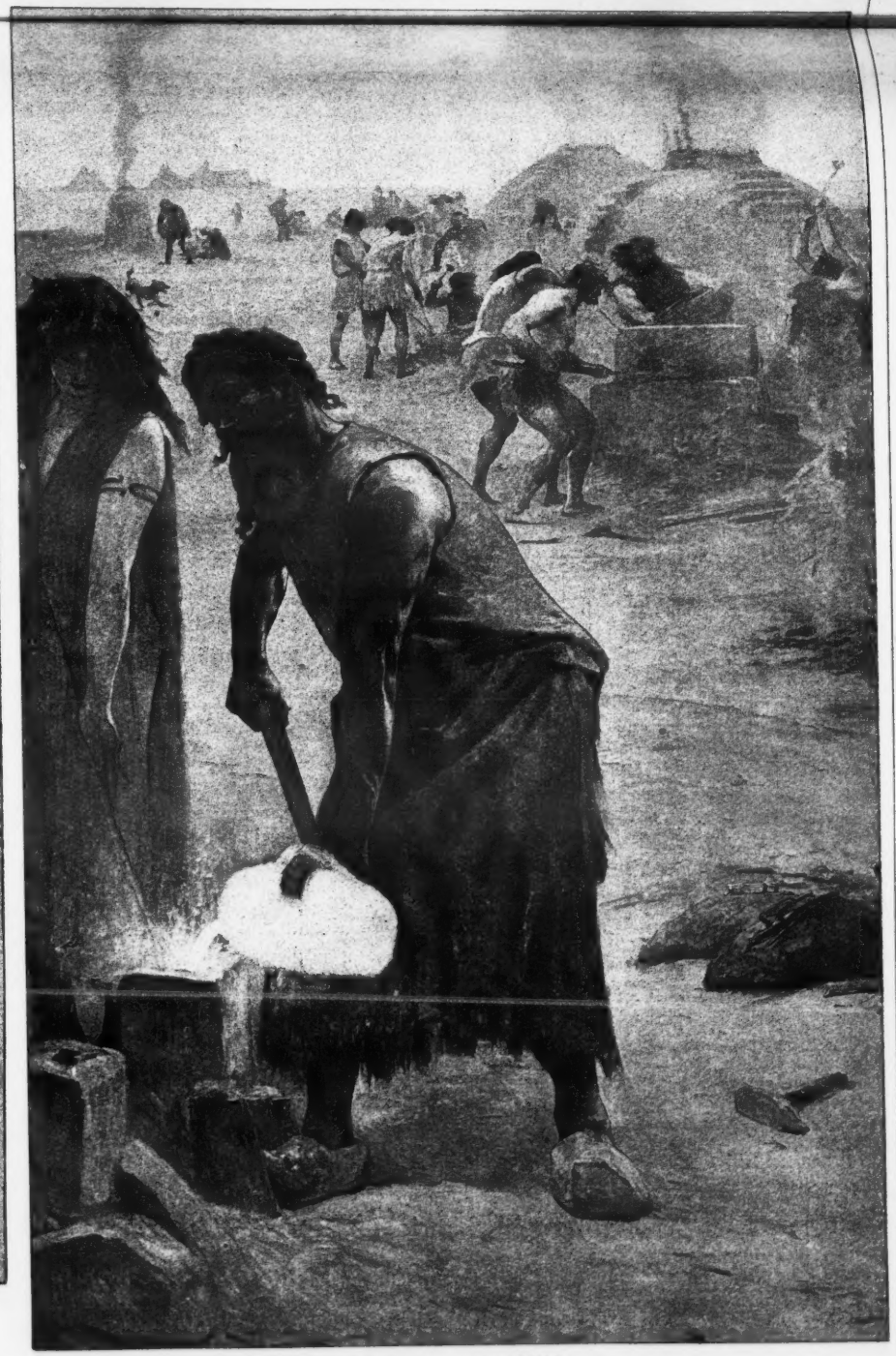

METAL FOUNDING.

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